INSTALLATION INSTRUCTIONS

PACKAGE AIR CONDITIONERS

FEATURING EARTH-FRIENDLY R-410A REFRIGERANT:

RSNL- 13 SEER (2-5 TONS)

RSPL- 14 SEER (2-5 TONS)

featuring R-410A earth friendly refrigerant

ENERGY STAR PARTNER

(14 SEER ONLY)

⚠ RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

⚠ WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

c UL us LISTED

Accredited by the RvA

ABS Quality Evaluations, Inc. Management System Certification

ANAB ACCREDITED

ISO 9001:2000

Certificate Number: 30164

DO NOT DESTROY THIS MANUAL

PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE BY A SERVICEMAN

[ ] INDICATES METRIC CONVERSIONS

92-21354-54-03
SUPERSEDES 92-21354-54-02

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IMPORTANT: *TO INSURE PROPER INSTALLATION AND OPERATION OF THIS PRODUCT, COMPLETELY READ ALL INSTRUCTIONS PRIOR TO ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE, MAINTAIN OR REPAIR THIS PRODUCT. UPON UNPACKING OF THE FURNACE, INSPECT ALL PARTS FOR DAMAGE PRIOR TO INSTALLATION AND START-UP.*

I. SAFETY INFORMATION

⚠ WARNING

PROPOSITION 65: THIS APPLIANCE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

⚠ WARNING

THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR CONDITIONER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR CONDITIONER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR CONDITIONER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.

⚠ WARNING

DISCONNECT ALL POWER TO THE UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.

⚠ WARNING

UNITS ARE NOT DESIGN CERTIFIED TO BE INSTALLED INSIDE THE STRUCTURE. DOING SO CAN CAUSE INADEQUATE UNIT PERFORMANCE AS WELL AS PROPERTY DAMAGE AND CARBON MONOXIDE POISONING RESULTING IN PERSONAL INJURY OR DEATH.

⚠ WARNING

DO NOT, UNDER ANY CIRCUMSTANCES, CONNECT RETURN DUCTWORK TO ANY OTHER HEAT PRODUCING DEVICE SUCH AS A FIREPLACE INSERT, STOVE, ETC. UNAUTHORIZED USE OF SUCH DEVICES MAY RESULT IN FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

⚠ WARNING

THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT KIT FOR A GROUND WIRE. (SEE FIGURES 12 AND 13.) FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

⚠ WARNING

ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED BY A NATIONALLY RECOGNIZED SAFETY TESTING AGENCY FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THIS UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, BODILY INJURY OR DEATH.

⚠ WARNING

DISCONNECT MAIN ELECTRICAL POWER TO THE UNIT BEFORE ATTEMPTING TO CHANGE BLOWER SPEEDS. FAILURE TO DO SO MAY RESULT IN ELECTRICAL SHOCK OR SEVERE PERSONAL INJURY OR DEATH.

⚠ CAUTION

R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment.

⚠ WARNING

IMPORTANT: ALL MANUFACTURER PRODUCTS MEET CURRENT FEDERAL OSHA GUIDELINES FOR SAFETY. CALIFORNIA PROPOSITION 65 WARNINGS ARE REQUIRED FOR CERTAIN PRODUCTS, WHICH ARE NOT COVERED BY THE OSHA STANDARDS.

CALIFORNIA'S PROPOSITION 65 REQUIRES WARNINGS FOR PRODUCTS SOLD IN CALIFORNIA THAT CONTAIN, OR PRODUCE, ANY OF OVER 600 LISTED CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR BIRTH DEFECTS SUCH AS FIBERGLASS INSULATION, LEAD IN BRASS, AND COMBUSTION PRODUCTS FROM NATURAL GAS.

ALL "NEW EQUIPMENT" SHIPPED FOR SALE IN CALIFORNIA WILL HAVE LABELS STATING THAT THE PRODUCT CONTAINS AND/OR PRODUCES PROPOSITION 65 CHEMICALS. ALTHOUGH WE HAVE NOT CHANGED OUR PROCESSES, HAVING THE SAME LABEL ON ALL OUR PRODUCTS FACILITATES MANUFACTURING AND SHIPPING. WE CANNOT ALWAYS KNOW "WHEN, OR IF" PRODUCTS WILL BE SOLD IN THE CALIFORNIA MARKET.

YOU MAY RECEIVE INQUIRIES FROM CUSTOMERS ABOUT CHEMICALS FOUND IN, OR PRODUCED BY, SOME OF OUR HEATING AND AIR-CONDITIONING EQUIPMENT, OR FOUND IN NATURAL GAS USED WITH SOME OF OUR PRODUCTS. LISTED BELOW ARE THOSE CHEMICALS AND SUBSTANCES COMMONLY ASSOCIATED WITH SIMILAR EQUIPMENT IN OUR INDUSTRY AND OTHER MANUFACTURERS.

- **GLASS WOOL (FIBERGLASS) INSULATION**
- **CARBON MONOXIDE (CO)**
- **FORMALDEHYDE**
- **BENZENE**

MORE DETAILS ARE AVAILABLE AT THE WEBSITES FOR OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION), AT WWW.OSHA.GOV AND THE STATE OF CALIFORNIA'S OEHHA (OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT), AT WWW.OEHHA.ORG. CONSUMER EDUCATION IS IMPORTANT SINCE THE CHEMICALS AND SUBSTANCES ON THE LIST ARE FOUND IN OUR DAILY LIVES. MOST CONSUMERS ARE AWARE THAT PRODUCTS PRESENT SAFETY AND HEALTH RISKS, WHEN IMPROPERLY USED, HANDLED AND MAINTAINED.

II. INTRODUCTION

This booklet contains the installation and operating instructions for your self-contained air conditioner. There are a few precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions.

Read this booklet and any instructions packaged with separate equipment required to make up the system prior to installation. Give this booklet to the owner and explain its provisions. The owner should retain this booklet for future reference.

III. CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the unit model number, electrical characteristics, and accessories to determine if they are correct.

IV. SPECIFICATIONS

A. GENERAL

The Packaged Air Conditioner is available without heat or with 5, 10, or 15 kW electric heat. Cooling capacities of 2, 2½, 3, 3½, 4 and 5 nominal tons of cooling are available. Units are convertible from end supply and return to bottom supply and return by relocation of supply and return air access panels. See cover installation detail.

The units are weatherized for mounting outside of the building.

⚠ WARNING

UNITS ARE NOT DESIGN CERTIFIED TO BE INSTALLED INSIDE THE STRUCTURE. DOING SO CAN CAUSE INADEQUATE UNIT PERFORMANCE AS WELL AS PROPERTY DAMAGE AND CARBON MONOXIDE POISONING RESULTING IN PERSONAL INJURY OR DEATH.

The information on the rating plate is in compliance with the FTC and DOE rating for single phase units. The following information is for three phase units which **are not** covered under the DOE certification program.

1. The energy consumption of the ignition system used with this unit is 9 watts.
2. The efficiency rating of this unit is a product thermal efficiency rating determined under continuous operating conditions independent of any installed system.

B. MAJOR COMPONENTS

The unit includes a hermetically-sealed refrigerating system (consisting of a compressor, condenser coil, evaporator coil with capillary tube assembly), a circulation air blower, a condenser fan, and all necessary internal electrical wiring. The cooling system of these units is factory-evacuated, charged and performance tested. Refrigerant amount and type are indicated on rating plate.

C. R-410A REFRIGERANT

All units are factory charged with R-410A refrigerant.

1. Specification of R-410A:

Application: R-410A is not a drop-in replacement for R-22; equipment designs must accommodate its higher pressures. It cannot be retrofitted into R-22 units.

Pressure: The pressure of R-410A is approximately 60% (1.6 times) greater than R-22. Recovery and recycle equipment, pumps, hoses and the like need to have design pressure ratings appropriate for R-410A. *Manifold sets need to range up to 800 psig high-side and 250 psig low-side with a 550 psig low-side retard. Hoses need to have a service pressure rating of 800 psig. Recovery cylinders need to have a 400 psig service pressure rating.* DOT 4BA400 or DOT BW400.

Combustibility: At pressures above 1 atmosphere, mixture of R-410A and air can become combustible. **R-410A and air should never be mixed in tanks or supply lines, or be allowed to accumulate in storage tanks. Leak checking should never**

⚠ WARNING

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FIGURE 1
LED DESCRIPTION

be done with a mixture of R-410A and air. Leak checking can be performed safely with nitrogen or a mixture of R-410A and nitrogen.

2. Quick Reference Guide For R-410A

- R-410A refrigerant operates at approximately 60% higher pressure (1.6 times) than R-22. Ensure that servicing equipment is designed to operate with R-410A.
- R-410A refrigerant cylinders are pink.
- R-410A, as with other HFC's is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil.
- R-410A systems are to be charged with liquid refrigerants. Prior to March 1999, R-410A refrigerant cylinders had a dip tube. These cylinders should be kept upright for equipment charging. Post March 1999 cylinders do not have a dip tube and should be inverted to ensure liquid charging of the equipment.
- Do not install a suction line filter drier in the liquid line.
- A liquid line filter drier is standard on every unit.
- Desiccant (drying agent) must be compatible for POE oils and R-410A.

3. Evaporator Coil / TXV

The thermostatic expansion valve is specifically designed to operate with R-410A. **DO NOT use an R-22 TXV. The existing evaporator must be replaced with the factory specified TXV evaporator specifically designed for R-410A.**

4. Tools Required For Installing & Servicing R-410A Models

Manifold Sets:
-Up to 800 PSIG High side
-Up to 250 PSIG Low Side
-550 PSIG Low Side Retard

Manifold Hoses:
-Service Pressure Rating of 800 PSIG

Recovery Cylinders:
-400 PSIG Pressure Rating
-Dept. of Transportation 4BA400 or BW400

⚠ CAUTION

R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment.

D. COMFORT ALERT™ SYSTEM (5 TON RSPL MODEL ONLY)

1. Comfort Alert™

The Comfort Alert™ diagnostics module is for troubleshooting air conditioning system failures. By monitoring and analyzing data from the compressor and the thermostat demand, the module can accurately detect the cause of electrical and system-related failures without any external sensors. A flashing LED indicator communicates the ALERT code and guides the service technician more quickly and accurately to the root cause of a problem.

POWER LED (Green): indicates voltage is present at the power connection of the module.

ALERT LED (Yellow): communicates an abnormal system condition through a unique flash code. The ALERT LED will flash a number of times consecutively, pause and then repeat the process. The number of consecutive flashes, defined as the Flash Code, correlates to a particular abnormal condition. Detailed descriptions of specific ALERT Flash Codes are shown in the Comfort Alert Diagnosis Chart in this manual.

TRIP LED (Red): indicates there is a demand signal from the thermostat but no current to the compressor is detected by the module. The TRIP LED typically indicates the compressor internal overload protector is open or may indicate missing high voltage supply power to the compressor.

When an abnormal system condition occurs, the Comfort Alert module displays the appropriate ALERT and/or TRIP LED. The yellow ALERT LED will flash a number of times consecutively, pause and then repeat the process. To identify a Flash Code number, count the number of consecutive flashes.

IMPORTANT: Every time the module powers up, the last ALERT Flash Code that occurred prior to shut down is displayed for one minute. The module will continue to display the flash code until the condition returns to normal or if 24VAC power is removed from the module.

The control box cover allows access to the Comfort Alert™ status LEDs. An abbreviated Comfort Alert™ diagnostic chart is provided on the control box cover.

2. High Pressure Control (HPC)

The high pressure control (HPC) keeps the compressor from operating in pressure ranges, which can cause damage to the compressor. This is an auto-reset control that opens near 610 PSIG and closes once the system pressure drops below 420 PSIG.

The high pressure control is wired in the 24VAC side of the control circuitry.

3. Low Pressure Control (LPC)

The low pressure control (LPC) keeps the compressor from operating in pressure ranges that can cause damage to the compressor. This is an auto-reset control that opens near 90 PSIG and closes once the system pressure rises above 135 PSIG.

The low pressure control is wired in the common side of the control circuitry.

4. Comfort Alert With Active Protection (When Used With White-Rodgers Thermostat 1F95-CA397)

A two-stage cooling thermostat is required for proper unit operation.

Manufacturer recommends the use of the White-Rodgers 90-Series thermostat (model 1F95-CA397). This thermostat provides active compressor protection via the L terminal when the Comfort-Alert module on the unit is connected to the L terminal on the thermostat.

FIGURE 2
WHITE-RODGERS 90-SERIES THERMOSTAT

FIGURE 3

The Comfort Alert diagnostics module diagnoses system and electrical problems in the air conditioning system. Abnormal conditions are indicated by flashing ALERT codes on the yellow LED on the Comfort Alert module. The flash codes are transmitted to the thermostat when the ***L*** terminal on the Comfort Alert Module is connected to the ***L*** terminal on the thermostat. The White-Rodgers 1F95-CA397 thermostat displays a CHECK SYSTEM icon that flashes at the same rate as the yellow ALERT LED on the Comfort Alert module. Turn this feature ON to achieve protection, enabling the thermostat to identify certain fault codes when compressor damage is possible and react to those codes by turning the compressor off.

NOTE: The Comfort Alert™ module does not provide safety protection! It does not disconnect power from the unit.

Comfort Alert™ Flash Codes
1 – Long Run Time
2 – System Pressure Trip
3 – Short Cycling
4 – Locked Rotor
5 – Open Circuit
6 – Open Start Circuit
7 – Open Run Circuit
8 – Welded Contactor
9 – Low Voltage

See Figure 44 and 45 (Comfort Alert Diagnostic Charts) for more troubleshooting information.

Active protection occurs under the following conditions:

1) Flash Code 2 - *System Pressure Trip*
   Condition: Four consecutive compressor protector trips occur where the average run time until trip is between 1 minute and 15 minutes
   Possible causes:
   Low suction pressure
   - Low pressure switch is open
   - Low system charge

   Blocked condenser coil
   Restricted condenser air flow

   Active Thermostat Reaction:
   The thermostat will cycle the system ON for 5 minutes and OFF for five minutes to verify system fault. If this ON/OFF cycling repeats for 30 ten-minute cycles, the thermostat concludes there is a system problem and implements a hard lockout.

2) Flash Code 3 - *Short Cycling*
   Condition: A pattern of short cycling emerges where the run time for the previous four cycles is less than three minutes each.
   Possible causes:
   High head pressure
   - High pressure switch is open
   - System overcharged
   - Non-condensables in system

   Faulty thermostat
   Intermittent contactor

   Active Thermostat Reaction:
   The thermostat will cycle the system ON for 5 minutes and OFF for five minutes to verify the system fault. If this ON/OFF cycling repeats for 30 ten-minute cycles, the thermostat concludes there is a system problem and implements a hard lockout.

3) Flash Code 4 - *Locked Rotor*

Condition: The compressor internal overload trips where the average run time is less than 15 seconds.

Possible causes:

- Bad run capacitor
- Low line voltage
- Excessive liquid refrigerant in compressor
- Compressor bearings are seized
- Faulty hard start components

Active Thermostat Reaction:

The thermostat implements a hard lockout once this error is sensed.

4) Flash Code 6 - *Open Start Circuit*

Condition: Current is detected in the run circuit but not in the start circuit.

Possible causes:

- Bad run capacitor
- Open circuit in compressor start wiring or connections.
- Compressor start winding is damaged

Active thermostat reaction:

The thermostat implements a hard lockout after 3 hours.

5) Flash Code 7 - *Open Run Circuit*

Condition: Open circuit in compressor run wiring or connections. Compressor run winding is damaged.

Active Thermostat Reaction:

The thermostat implements a hard lockout after 3 hours.

Resetting the White-Rodgers Thermostat After a Hard Lockout

The White-Rodgers thermostat will automatically reset after a hard lockout once the Comfort Alert trouble code has been cleared.

V. EQUIPMENT PROTECTION (Corrosive Environment)

The metal parts of this unit may be subject to rust or deterioration if exposed to a corrosive environment. This oxidation could shorten the equipment's useful life. Corrosive elements include, but are not limited to, salt spray, fog or mist in seacoast areas, sulphur or chlorine from lawn watering systems, and various chemical contaminants from industries such as paper mills and petroleum refineries.

If the unit is to be installed in an area where contaminants are likely to be a problem, special attention should be given to the equipment location and exposure.

1. Avoid having lawn sprinkler heads spray directly on the unit cabinet.
2. In coastal areas, locate the unit on the side of the building away from the waterfront.
3. Shielding provided by a fence or shrubs may give some protection.
4. Elevating the unit off its slab or base enough to allow air circulation will help avoid holding water against the basepan.

Regular maintenance will reduce the buildup of contaminants and help to protect the unit's finish.

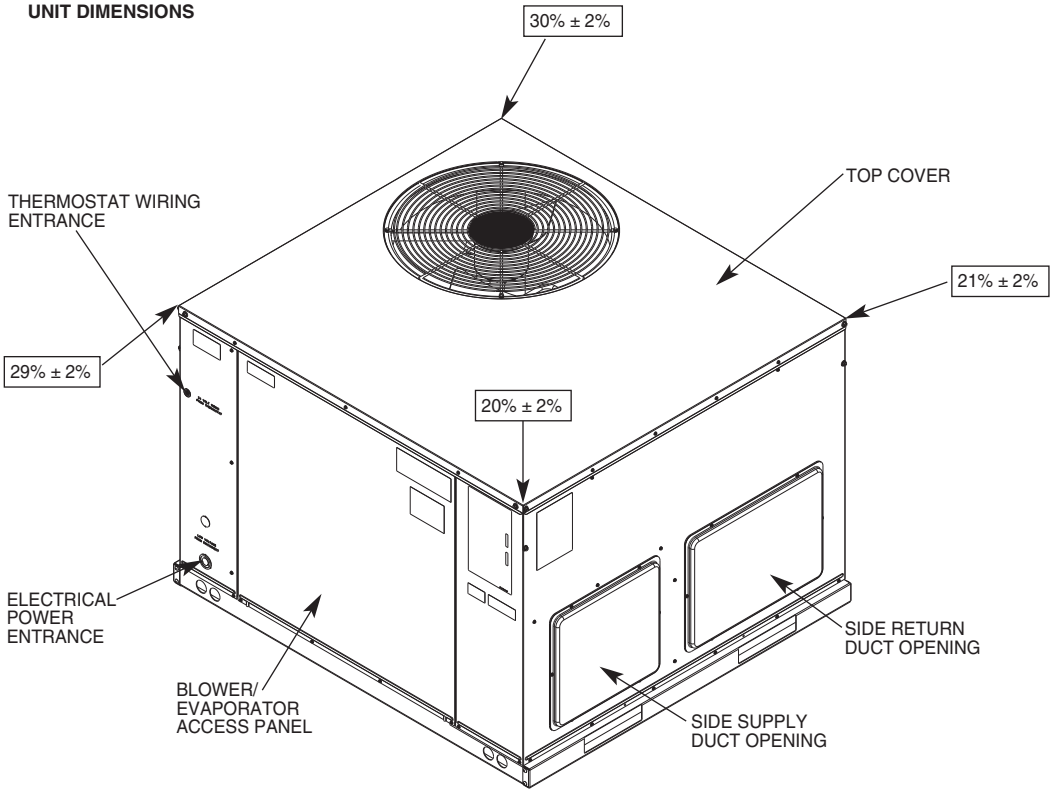
> **⚠ WARNING**
>
> **DISCONNECT ALL POWER TO THE UNIT BEFORE STARTING MAINTENANCE. FAILURE TO DO SO CAN RESULT IN SEVERE ELECTRICAL SHOCK OR DEATH.**

1. Frequent washing of the cabinet, fan blade and coil with fresh water will remove most of the salt or other contaminants that build up on the unit.
2. Regular cleaning and waxing of the cabinet with an automobile polish will provide some protection.
3. A liquid cleaner may be used several times a year to remove matter that will not wash off with water.

Several different types of protective coatings are offered in some areas. These coatings may provide some benefit, but the effectiveness of such coating materials cannot be verified by the equipment manufacturer.

The best protection is frequent cleaning, maintenance and minimal exposure to contaminants.

FIGURE 4
UNIT DIMENSIONS



CORNER WEIGHTS % OF TOTAL UNIT WEIGHT

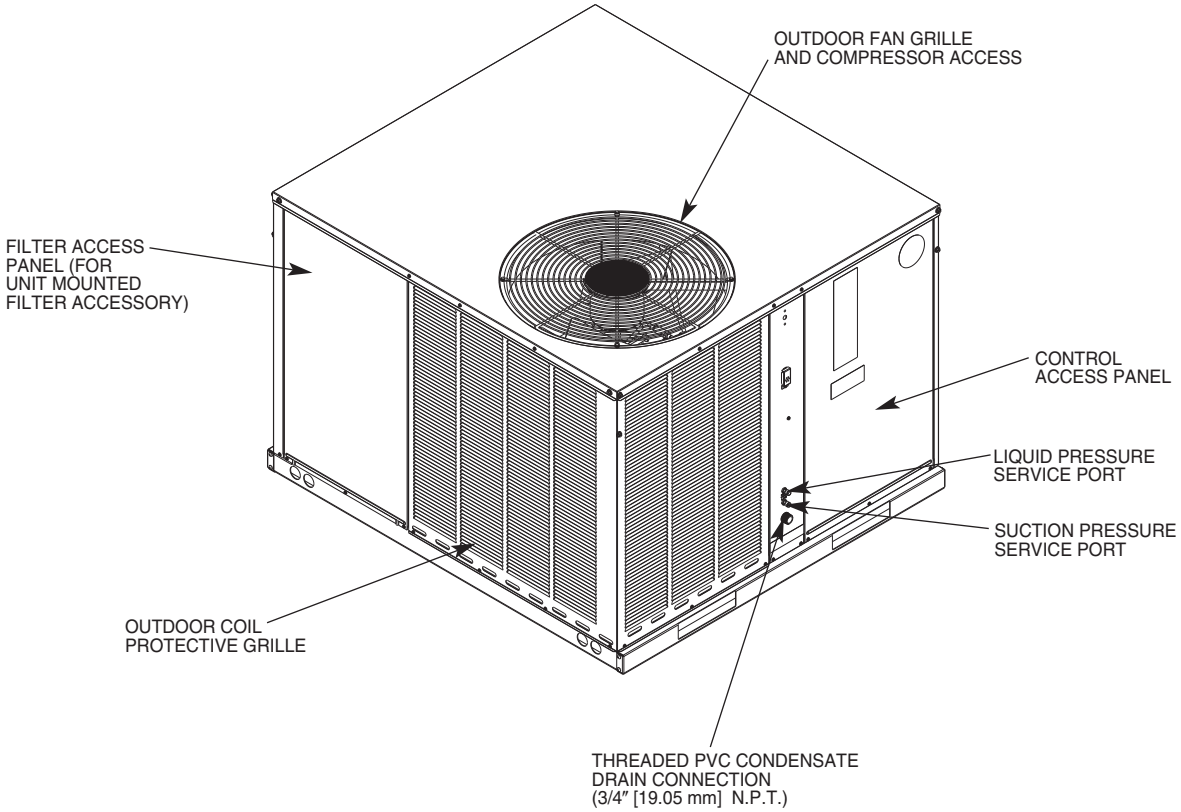
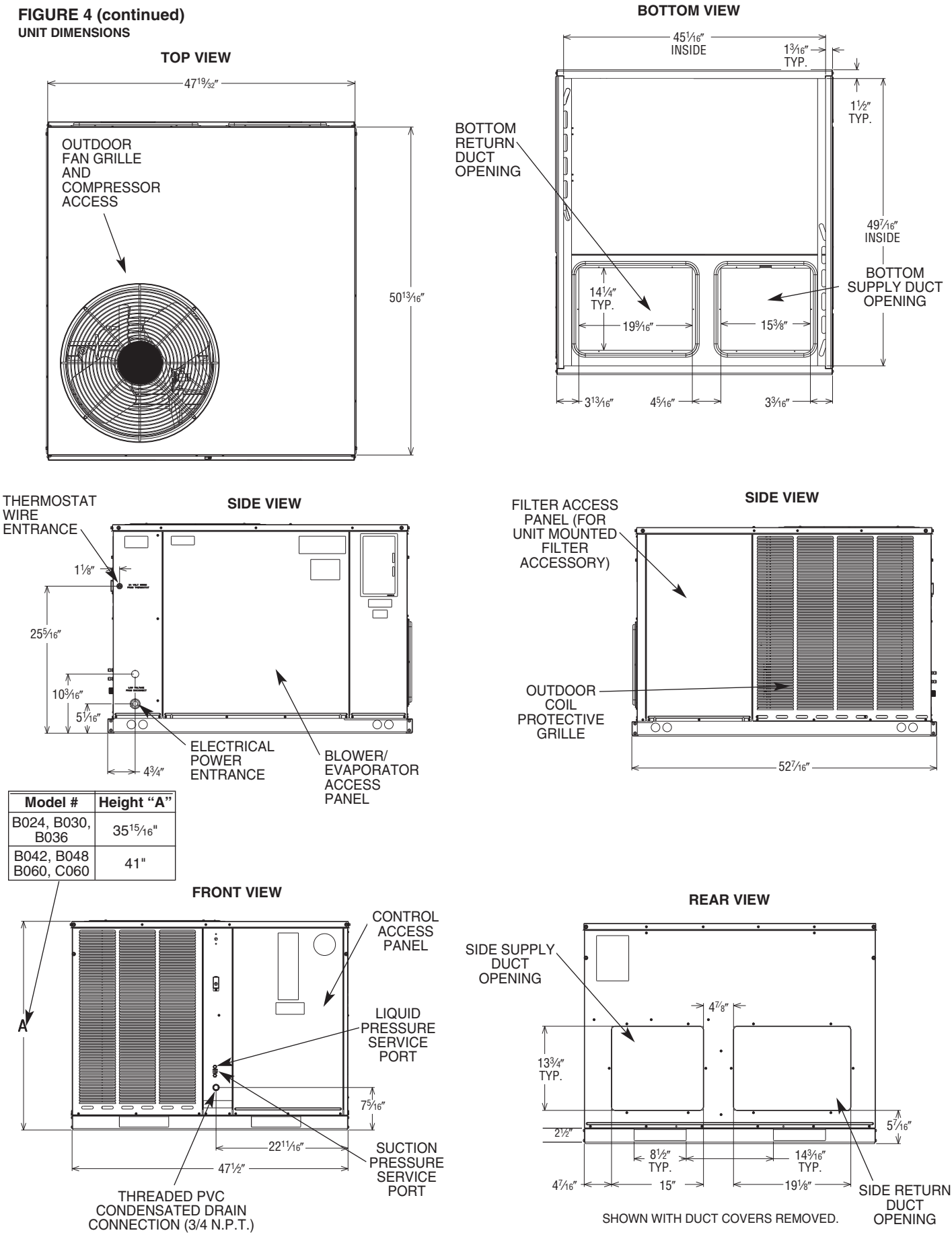


FIGURE 4 (continued)
UNIT DIMENSIONS



Model #	Height "A"
B024, B030, B036	35 15/16"
B042, B048 B060, C060	41"

IMPORTANT: *Unit must be level to prevent water migration.*

VI. INSTALLATION

A. GENERAL

1. PRE-INSTALLATION CHECK-POINTS

   Before attempting any installation, the following points should be carefully considered:

   a. Structural strength of supporting members. (rooftop installation)
   b. Clearances and provision for servicing.
   c. Power supply and wiring.
   d. Air duct connections.
   e. Drain facilities and connections.
   f. Location for minimum noise.

2. LOCATION

   These units are designed for outdoor installations. They can be mounted on a slab or rooftop. They are not to be installed within any part of a structure such as an attic, crawl space, closet, or any other place where condenser air flow is restricted or other than outdoor ambient conditions prevail. Since the application of the units is of the outdoor type, it is important to consult your local code authorities at the time the first installation is made.

B. OUTSIDE SLAB INSTALLATION

(Typical outdoor slab installations are shown in Figures 5 and 6.)

1. Select a location where external water drainage cannot collect around the unit.
2. Provide a level concrete slab extending 3" beyond all four sides of the unit. The slab should be sufficient above grade to prevent ground water from entering the unit. ***IMPORTANT:*** *To prevent transmission of noise or vibration, slab should not be connected to building structure.*
3. The location of the unit should be such as to provide proper access for inspection and servicing.
4. Locate unit where operating sounds will not disturb owner or neighbors.
5. Locate unit so roof runoff water does not pour directly on the unit. Provide gutter or other shielding at roof level. Do not locate unit in an area where excessive snow drifting may occur or accumulate.

C. CLEARANCES

The following minimum clearances must be observed for proper unit performance and serviceability.

1. Provide 36" minimum clearance at the front and right side of the unit for service access. Provide 12" minimum clearance on the left side of the unit for air inlet.
2. Provide 60" minimum clearance between top of unit and maximum 3 foot overhang.
3. Unit is design certified for application on combustible flooring with 0" minimum clearance.
4. See Figure 5 for illustration of minimum installation-service clearances.

D. ROOFTOP INSTALLATION

1. Before locating the unit on the roof, make sure that the strength of the roof and beams is adequate at that point to support the weight involved. (See Electrical and Physical Data Table in this manual for weight of unit.) This is very important and user's responsibility.
2. For rigging and roofcurb details, see Figures 7 and 8. Use accessory lift brackets and field-furnished spreaders.
3. For roofcurb assembly, see Roofcurb Installation Instructions.
4. If the roofcurb is not used, provisions for disposing of condensate water runoff must be provided.
5. The unit should be placed on a solid and level roofcurb or platform of adequate strength.
6. The location of the unit on the roof should be such as to provide proper access for inspection and servicing.

IMPORTANT: *If unit will not be put into service immediately, cover supply and return openings to prevent excessive condensation.*

FIGURE 5
PACKAGE AIR CONDITIONER – OUTSIDE SLAB INSTALLATION, BASEMENT OR CRAWL SPACE DISTRIBUTION SYSTEM.

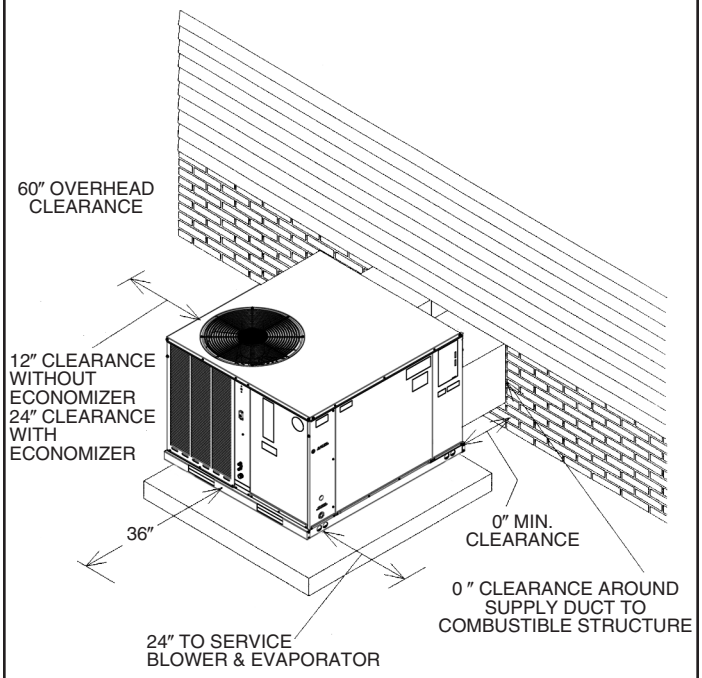


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FIGURE 6
PACKAGE AIR CONDITIONER – OUTSIDE SLAB INSTALLATION, CLOSET DISTRIBUTION SYSTEM. SLAB FLOOR CONSTRUCTION.

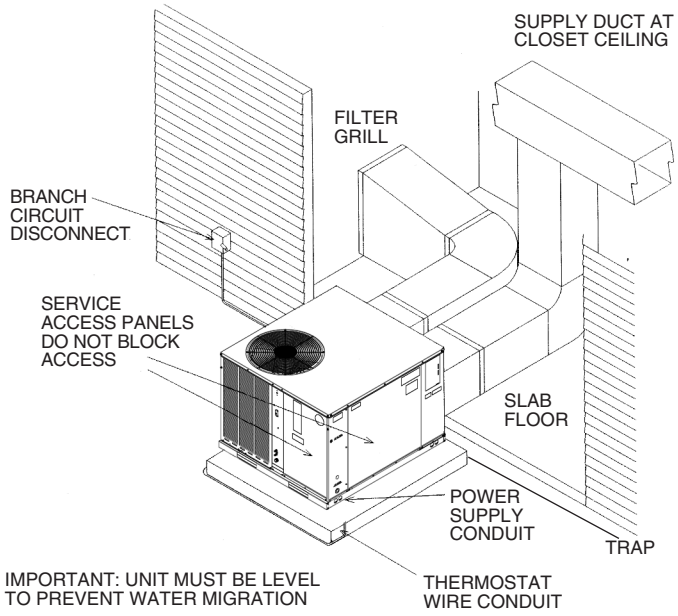

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FIGURE 7
PACKAGE AIR CONDITIONER – RIGGING FOR LIFTING

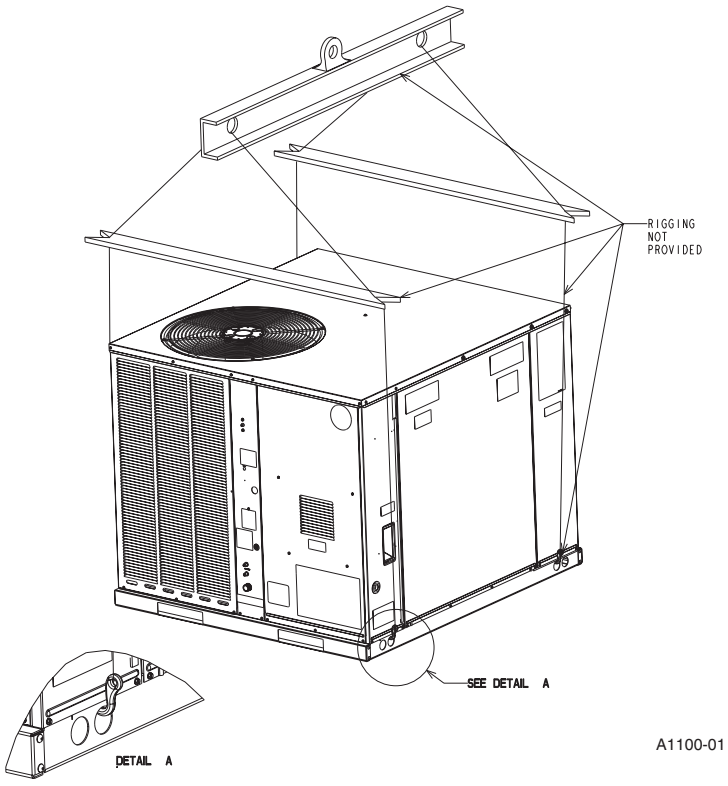

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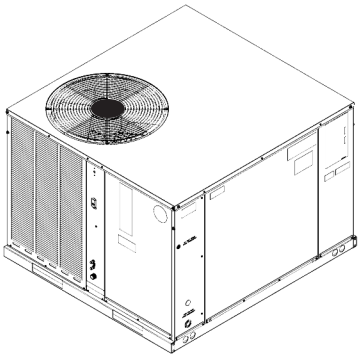
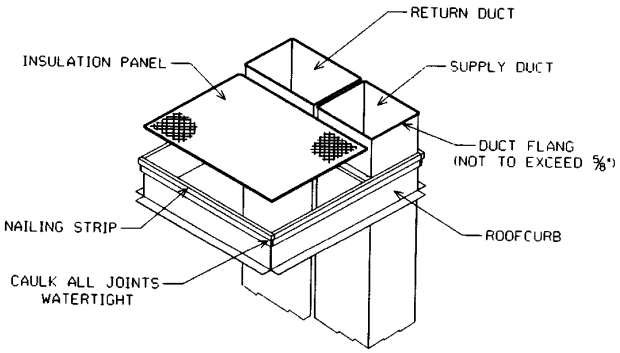
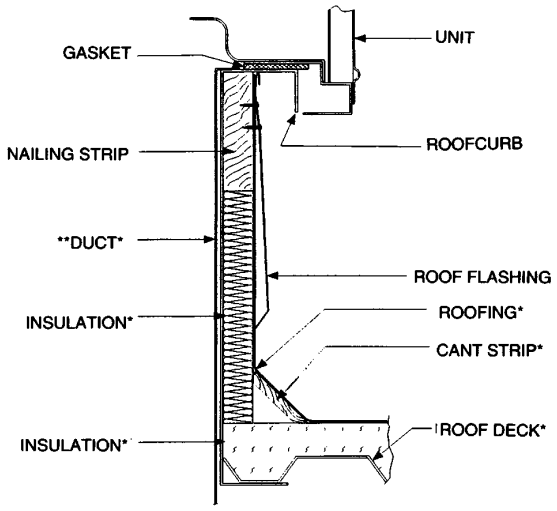
FIGURE 8
ROOFCURB INSTALLATION







* BY CONTRACTOR
** FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR DUCT FLANGE ATTACHMENT TO UNIT, SEE UNIT INSTALLATION INSTRUCTIONS FOR RECOMMENDED DUCT SIZES.

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VII. DUCTWORK

Ductwork should be fabricated by the installing contractor in accordance with local codes and NFPA90A. Industry manuals may be used as a guide when sizing and designing the duct system - contact Air Conditioning Contractors of America, 1513 16th St. N.W., Washington, D.C. 20036.

⚠ WARNING

DO NOT, UNDER ANY CIRCUMSTANCES, CONNECT RETURN DUCTWORK TO ANY OTHER HEAT PRODUCING DEVICE SUCH AS A FIREPLACE INSERT, STOVE, ETC. UNAUTHORIZED USE OF SUCH DEVICES MAY RESULT IN FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

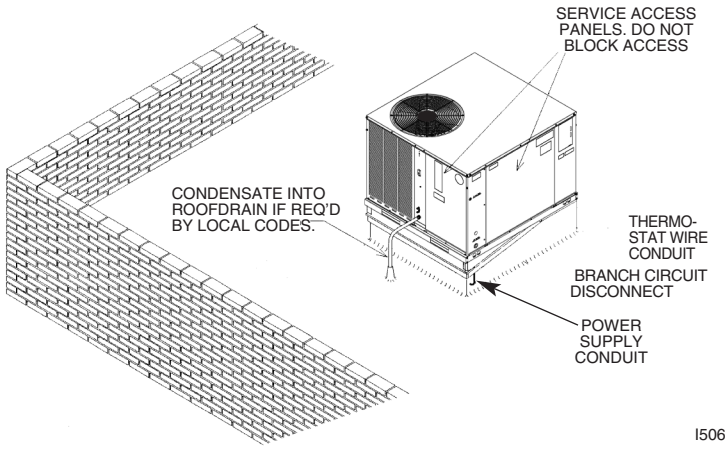
Place the unit as close to the space to be conditioned as possible, allowing clearance dimensions as indicated. Run ducts should be run as directly as possible to supply and return outlets. Use of non-flammable waterproof flexible connectors on both supply and return connections at the unit to reduce noise transmission is recommended.

It is preferable to install the unit on the roof of the structure if the registers or diffusers are located on the wall or in the ceiling. A slab installation could be considered when the registers are low on a wall or in the floor.

On ductwork exposed to outside air conditions of temperature and humidity, use a minimum of 2" of insulation and a vapor barrier. Distribution system in attic, furred space or crawl space should be insulated with at least 2" of insulation with vapor barrier. One-half to 1" thickness of insulation is usually sufficient for ductwork inside the air conditioned space.

Provide balancing dampers for each branch duct in the supply system. Properly support ductwork from the structure.

FIGURE 9
PACKAGE AIR CONDITIONER FLAT ROOFTOP INSTALLATION, ATTIC OR DROP CEILING DISTRIBUTION SYSTEM. MOUNTED ON ROOFCURB, CURB MUST BE LEVEL.



VIII. FILTERS

Filters are not provided with this unit. They may be supplied and installed in the return air duct by the installer. A field installed filter grille is recommended for easy and convenient access to the filters for periodic inspection and cleaning. Filters must have adequate face area for the rated air quantity of the unit. See Airflow Performance Table - or Electrical and Physical Data Table - for recommended filter size.

However, if an internal filter is required, an optional internal filter kit is available for downflow applications only. For installation, see Filter Kit Installation Instruction.

FIGURE 10
PITCHED ROOFTOP INSTALLATION, ATTIC OR DROP CEILING DISTRIBUTION SYSTEM. MUST BE MOUNTED LEVEL

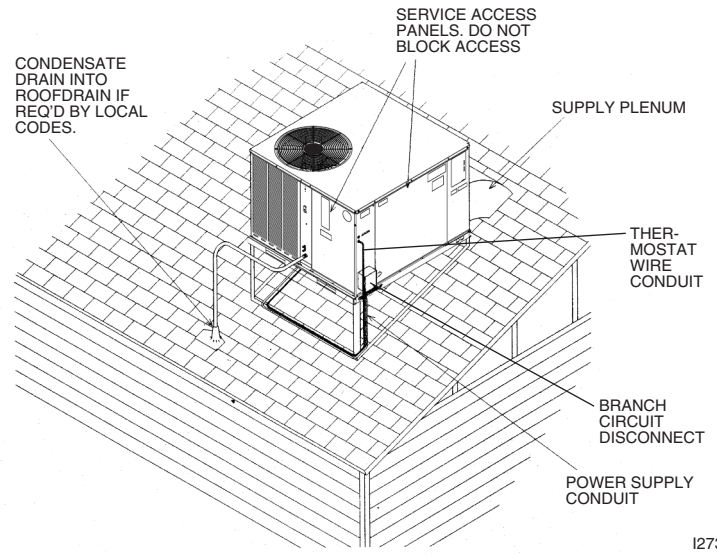
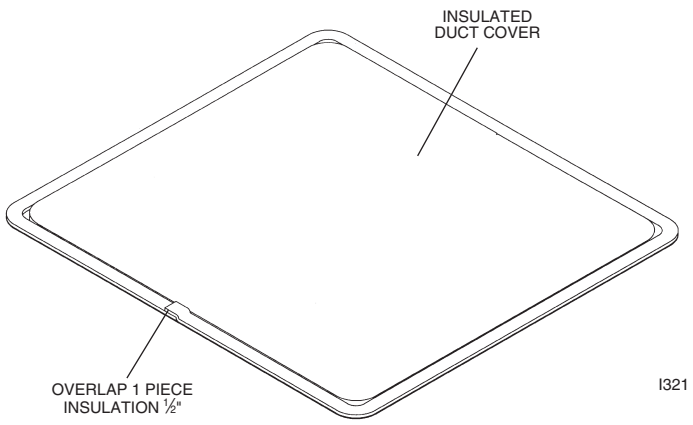


FIGURE 11
COVER GASKET DETAIL



IX. CONVERSION PROCEDURE

1. HORIZONTAL TO DOWNFLOW
   a. Remove screws and covers from the downflow supply and return sections. Both covers are accessible from the inside of the unit.
   b. Install gasket (supplied with parts bag) around perimeter of cover on the insulated side. In other words, the gasket is applied to the **opposite** side of flange than shown in Figure 11.
   c. Install covers on the outside of the unit over the horizontal supply and return opening using existing screws.
2. DOWNFLOW TO HORIZONTAL
   a. Remove screws and covers from outside of supply and return sections.
   b. Install gasket (supplied with parts bag) around perimeter of covers as illustrated in "Cover Gasket Detail."
   c. Install covers in bottom of unit with insulated side up. NOTE: Slip back flange of cover under tab on bottom supply duct opening.
   d. Secure covers to base of unit with screw engaging prepunched holes in unit base.

X. CONDENSATE DRAIN

The evaorator coil condensate drain ends with a threaded 3/4" nominal PVC stub. A trap is built in for proper condensate drainage and to prevent debris from being drawn into the unit. Do not connect drain to closed sewer line. Connection to a vented sewer line is allowed. It is recommended that a PVC cement not be used so that the drain line can be easily cleaned in the future.

IMPORTANT: DO NOT INSTALL AN EXTERNAL TRAP. DOING SO CAN CAUSE IMPROPER DRAINAGE OF THE CONDENSATE AND RESULT IN FLOODING WITHIN THE UNIT.

XI. ELECTRICAL WIRING

Field wiring must comply with the National Electrical Code* and local ordinances that may apply.

*C.E.C. in Canada

A. POWER WIRING

⚠ WARNING

TURN OFF THE MAIN ELECTRICAL POWER AT THE BRANCH CIRCUIT DISCONNECT CLOSEST TO THE UNIT BEFORE ATTEMPTING ANY WIRING. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

1. It is important that proper electrical power is available at the unit. Voltage should not vary more than 10% from that stamped on the unit rating plate. On three phase units, phases must be balanced within 3%.
2. Install a branch circuit disconnect within sight of the unit and of adequate size to handle the starting current. (See Table A.)
3. For branch circuit wiring (main power supply to unit disconnect), the minimum wire size can be determined from Table B using the circuit ampacity found on the unit nameplate or from Table C.
4. This unit incorporates single point electrical connection for unit and electric heat accessory.
5. Power wiring must be run in grounded rain-tight conduit. Connect the power field wiring as follows:
   a. NO ELECTRIC HEAT - Connect the field wires directly to the contactor in the unit control box. Connect ground wire to ground lug.
   b. WITH ELECTRIC HEAT - Connect the field wires to the terminal block on the electric heater kit. Connect the ground wire to the ground lug on the heater kit.

NOTE: For field installation of the heater kit, follow the instructions provided with the heater kit.

6. The pigtail wires in the electric heat box are factory wired to the contactor in the control box and are protected by internal fuses in the hinged fuse box mounted under the control box. See label on fuse box cover for fuse sizing.
7. DO NOT connect aluminum field wires to electric heat kit power input terminals.

B. SPECIAL INSTRUCTIONS FOR POWER WIRING WITH ALUMINUM CONDUCTORS.

1. Select the equivalent aluminum wire size from the tabulation below:
2. Attach a length (6" or more) of recommended size copper wire to the unit terminals L1 and L3 for single phase, L1, L2, L3 for three phase.
3. Splice copper wire pigtails to aluminum wire with U.L. recognized connectors for copper-aluminum splices. Follow these instructions very carefully to make a positive and lasting connection;
   a. Strip insulation from aluminum conductor.
   b. Coat the stripped end of the aluminum wire with the recommended inhibitor and wire brush aluminum surface through inhibitor. Inhibitors: Brundy, Pentex “A”; Alcoa, No. 2EJC; T&B KPOR Shield.

TABLE A
WIRE SIZES

AWG Copper Wire Size	AWG Aluminum Wire Size	Connector Type and Size (or equivalent)	
#12	#10	T&B Wire Nut	PT2
#10	#8	T&B Wire Nut	PT3
#8	#6	Ilsco Split Bolt	AK-6
#6	#4	Ilsco Split Bolt	AK-4
#4	#2	Ilsco Split Bolt	AK-2
#3	#1	Ilsco Split Bolt	AK-1/0
#2	#0	Ilsco Split Bolt	AK-1/0
#1	#00	Ilsco Split Bolt	AK-2/0
#0	#000	Ilsco Split Bolt	AK-4/0

c. Clean and recoat aluminum conductor with inhibitor.

d. Make the splice using the above listed wire nuts or split bolt connectors.

e. Coat the entire connection with inhibitor and wrap with electrical insulating tape.

WARRANTY MAY NOT APPLY IF CONNECTIONS ARE NOT MADE PER INSTRUCTIONS.

C. CONTROL WIRING (Class II)

1. Low voltage wiring should not be run in conduit with power wiring.
2. Control wiring is routed through the 7/8" hole approximately 11" from the unit top in the corner post adjacent to the control box. See Figure 12. Use a minimum #18 AWG thermostat wire. For wire lengths exceeding 50', use #16 AWG thermostat wire. The low voltage wires are connected to the unit pigtails which are supplied with the unit in the low voltage connection box located below the unit control box. See Figure 12.
3. Figure 13 shows representative low voltage connection diagrams. Read your thermostat installation instructions for any special requirements for your specific thermostat. Two stage units (5 ton) require use of a thermostat capable of 2 stages of cooling. See chart below for recommendations

TABLE B
THERMOSTAT RECOMMENDATIONS

SINGLE STAGE COOL W/O ECONOMIZER	TWO STAGE COOL W/ ECONOMIZER
MAPLE CHASE - MODEL #0970	HONEYWELL - MODEL #T7300-A1005
HONEYWELL - MODEL #T8602C	HONEYWELL - MODEL #T874D-1959
MAPLE CHASE - MODEL #0960	WHITE RODGERS - MODEL #1F73-74
WHITE RODGERS - MODEL #1F91-59	WHITE RODGERS - MODEL #1F85-275
ROBERTSHAW - MODEL #CM64A-USAJ	WHITE RODGERS - MODEL #1F95-377,1277

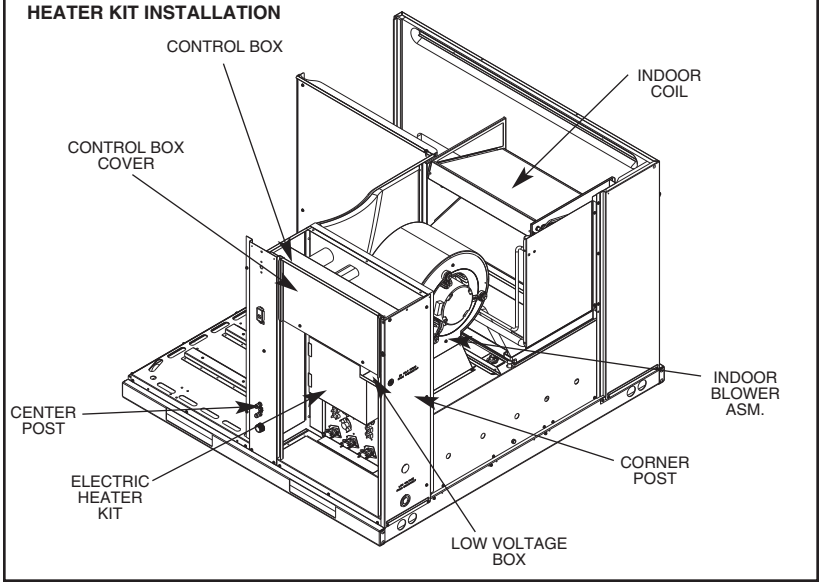
SEE SECTION IV, D, 4 FOR 5 TON THERMOSTAT WITH ACTIVE PROTECTION

NOTE — Units installed in Canada require that an outdoor thermostat (30,000 min. cycles of endurance) be installed and be wired with C.E.C. Class I wiring.

D. INTERNAL WIRING

1. A diagram of the internal wiring of this unit is located on the electrical control box cover. If any of the original wire as supplied with the appliance must be replaced, the wire gauge and insulation must be the same as original wiring.

FIGURE 12
HEATER KIT INSTALLATION



E. GROUNDING

⚠ WARNING

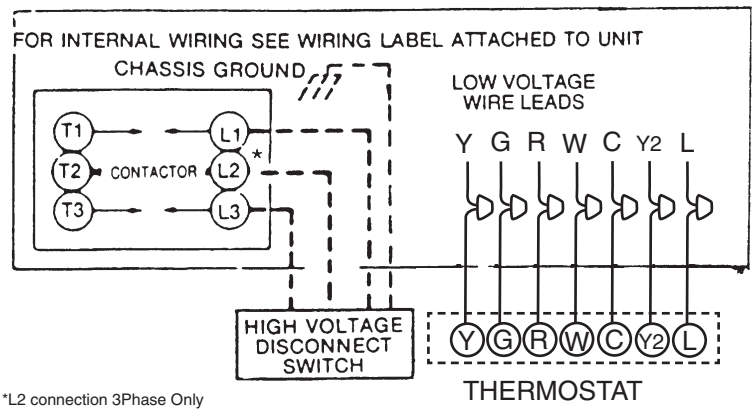
THE UNIT MUST BE PERMANENTLY GROUNDED. A GROUNDING LUG IS PROVIDED IN THE ELECTRIC HEAT KIT FOR A GROUND WIRE. (SEE FIGURES 12 AND 13.) FAILURE TO GROUND THIS UNIT CAN RESULT IN FIRE OR ELECTRICAL SHOCK CAUSING PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH.

GROUNDING MAY ALSO BE ACCOMPLISHED BY GROUNDING THE POWER LINE CONDUIT TO THE UNIT. MAKE SURE THE CONDUIT NUT LOCKING TEETH HAVE PIERCED THE INSULATING PAINT FILM OF THE SIDE PANEL.

F. THERMOSTAT

The thermostat should be mounted on an inside wall about five feet above the floor in a location where it will not be affected by unconditioned air, sun, or drafts from open doors or other sources. READ installation instructions in thermostat package CAREFULLY because each has some different wiring requirements.

FIGURE 13
VOLTAGE CONNECTIONS DIAGRAMS — STANDARD CONTROL WIRING



*L2 connection 3Phase Only

Y - Cooling (Low Stage in 2 Stage Systems)
G - Fan Only
R - 24v
W - Heating
C - Common
Y2 - High Stage Cooling (Two Stage Only)
L - Alert Codes (Optional with Comfort Alert and Compatiable Thermostat)

XII. INDOOR AIR FLOW DATA

All 208/230 volt units are equipped with multi-speed indoor blower motors. Each unit is shipped factory wired for the proper speed at a normal external static.

XIII. CRANKCASE HEAT (OPTIONAL)

At initial startup or after extended shutdown periods, make sure crankcase heat is energized for at least 12 hours before compressor is started (disconnect switch closed and wall thermostat “OFF” position).

Crankcase heat is not required on scroll type compressors, but may be necessary for difficult starting situations.

XIV. PRE-START CHECK

1. Is unit properly located and slightly slanted toward indoor condensate drain?
2. Is ductwork insulated, weatherproofed, with proper spacing to combustible materials?
3. Is air free to travel to and from outdoor coil? (See Figure 5.)
4. Is the wiring correct, tight, and according to unit wiring diagram?
5. Is unit grounded?
6. Are field supplied air filters in place and clean?
7. Do the outdoor fan and indoor blower turn freely without rubbing, and are they tight on the motor shafts?
8. Has crankcase heat been on for at least 12 hours?

XV. STARTUP

1. Turn thermostat to “OFF,” turn “on” power supply at disconnect switch.
2. Turn temperature setting as high as it will go.
3. Turn fan switch to “ON.”
4. Indoor blower should run. Be sure it is running in the right direction.
5. Turn fan switch to “AUTO.” Turn system switch to “COOL” and turn temperature setting below room temperature. Unit should run in cooling mode.
6. Is outdoor fan operating correctly in the right direction?
7. Is compressor running correctly.
8. Check the refrigerant charge using the instructions located on control box cover. Replace service port caps. Service port cores are for system access only and will leak if not tightly capped.
9. Turn thermostat system switch to proper mode “HEAT” or “COOL” and set thermostat to proper temperature setting. Record the following after the unit has run some time.

   A. Operating Mode _____
   B. Discharge Pressure (High) _____PSIG
   C. Vapor Pressure at Compressor (Low) _____PSIG
   D. Vapor Line Temperature at Compressor _____°F.
   E. Indoor Dry Bulb_____°F.
   F. Indoor Wet Bulb _____°F.
   G. Outdoor Dry Bulb _____°F.
   H. Outdoor Wet Bulb _____°F.
   I. Voltage at Contactor _____Volts
   J. Current at Contactor _____Amps
   K. Model Number_____
   L. Serial Number _____
   M. Location_____
   N. Owner _____
   O. Date_____

10. Adjust discharge air grilles and balance system.
11. Check ducts for condensation and air leaks.
12. Check unit for tubing and sheet metal rattles.
13. Instruct the owner on operation and maintenance.
14. Leave “INSTALLATION” and ”USE AND CARE“ instructions with owner.

XVI. OPERATION

Most single phase units are operated PSC (no start relay or start capacitor). It is important that such systems be off for a minimum of 5 minutes before restarting to allow equalization of pressures. The thermostat should not be moved to cycle unit without waiting five minutes. To do so may cause the compressor to stop on an automatic open overload device or blow a fuse. Poor electrical service can cause nuisance tripping in overloads or blow fuses.

IMPORTANT: *The compressor has an internal overload protector. Under some conditions, it can take up to 2 hours for this overload to reset. Make sure overload has had time to reset before condemning the compressor.*

Some models may be factory equipped with a start relay and start capacitor.

Some units are equipped with a time delay control (TDC1). The control allows the blower to operate for up to 60 seconds after the thermostat is satisfied.

Units with Comfort Alert (5 ton): Green light should be on. Yellow and red lights should be off. If red light is on or yellow light is flashing see Comfort Alert diagnosis chart in this manual.

XVII. AUXILIARY HEAT

A. CONTROL SYSTEM OPERATION

1. In the cooling mode, the thermostat will, on a call for cooling, energize the compressor contactor and the indoor blower relay. The indoor blower can be operated continuously by setting the thermostat fan switch at the “ON” position.
2. In the heating mode, the thermostat will energize one or more supplementary resistance heaters.

⚠ WARNING

ONLY ELECTRIC HEATER KITS SUPPLIED BY THIS MANUFACTURER AS DESCRIBED IN THIS PUBLICATION HAVE BEEN DESIGNED, TESTED, AND EVALUATED BY A NATIONALLY RECOGNIZED SAFETY TESTING AGENCY FOR USE WITH THIS UNIT. USE OF ANY OTHER MANUFACTURED ELECTRIC HEATERS INSTALLED WITHIN THIS UNIT MAY CAUSE HAZARDOUS CONDITIONS RESULTING IN PROPERTY DAMAGE, FIRE, BODILY INJURY OR DEATH.

XVIII. RSNL/RSPL BLOWER MOTOR SPEED TAPS

Note: These instructions to be used in conjunction with airflow tables.

After determining necessary CFM and speed tap, follow the steps below to change speeds.

Units with PSC Blower Motors:

1. Remove blower access panel.
2. Locate wire terminals on the motor. All wires to a PSC motor are high voltage. The wire connected to the L (low), M (medium), or H (high) terminal determines the motor speed. Adjust blower speed by moving wire between these speed terminals. This speed will apply in both heating and cooling modes (they are not individually selectable). Wires to numbered terminals should not be moved.
3. Replace blower access panel.

Units with X-13 Motors

1. Remove blower access panel.
2. Locate wire terminals on the motor. Numbered terminals are 24V blower taps (See airflow tables for corresponding speed). The C terminal is 24V common. L, N, and G terminals are high voltage and must remain unchanged.
3. Cooling speed can be adjusted by moving appropriate wire between taps at the blower (Do not connect wires to unspecified speed taps).
4. Replace blower access panel.

XIX. GENERAL DATA - RSNL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSNL- Series	B024JK	B030JK	B036CK	B036JK
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	24,400 [7.15]	29,800 [8.73]	37,000 [10.84]	37,000 [10.84]
EER/SEER[2]	11.1/13	11.1/13	11.3/13	11.3/13
Nominal CFM/ARI Rated CFM [L/s]	800/800 [378/378]	1000/1000 [472/472]	1200/1200 [566/566]	1200/1200 [566/566]
ARI Net Cooling Capacity Btu [kW]	23,600 [6.91]	28,600 [8.38]	35,600 [10.43]	35,600 [10.43]
Net Sensible Capacity Btu [kW]	17,340 [5.08]	20,810 [6.1]	26,390 [7.73]	26,390 [7.73]
Net Latent Capacity Btu [kW]	6,260 [1.83]	7,790 [2.28]	9,210 [2.7]	9,210 [2.7]
Net System Power kW	2.12	2.58	3.15	3.15
Compressor				
No./Type	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	2500 [1180]	2500 [1180]	2700 [1274]	2700 [1274]
No. Motors/HP	1 at 1/5 HP	1 at 1/5 HP	1 at 1/5 HP	1 at 1/5 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/9x7 [228.6x177.8]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]
Drive Type/No. Speeds	Direct/2	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/4	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x20x20 [25x508x508]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	77.8 [2206]	76.8 [2177]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	381 [173]	399 [181]	412 [187]	412 [187]
Ship Weight lbs. [kg]	421 [191]	439 [199]	452 [205]	452 [205]

GENERAL DATA - RSNL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSNL- Series	B042CK	B042JK	B048CK	B048JK
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	50,000 [14.65]	50,000 [14.65]
EER/SEER[2]	11.2/13	11.2/13	11.2/13	11.2/13
Nominal CFM/ARI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1600/1600 [755/755]	1600/1600 [755/755]
ARI Net Cooling Capacity Btu [kW]	42,000 [12.31]	42,000 [12.31]	48,000 [14.06]	48,000 [14.06]
Net Sensible Capacity Btu [kW]	30,510 [8.94]	30,510 [8.94]	33,990 [9.96]	33,990 [9.96]
Net Latent Capacity Btu [kW]	11,490 [3.37]	11,490 [3.37]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	3.73	3.73	4.28	4.28
Compressor				
No./Type	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	76	76	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	3500 [1652]	3500 [1652]	3300 [1557]	3300 [1557]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	3/4	3/4
Motor RPM	1075	1075	1075	1075
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	112 [3175]	112 [3175]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	422 [191]	422 [191]	452 [205]	461 [209]
Ship Weight lbs. [kg]	462 [210]	462 [210]	492 [223]	501 [227]

GENERAL DATA - RSNL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSNL- Series	C060CK	C060JK
Cooling Performance[1]		
Gross Cooling Capacity Btu [kW]	59,500 [17.43]	59,500 [17.43]
EER/SEER[2]	10.5/13	10.5/13
Nominal CFM/ARI Rated CFM [L/s]	1900/1850 [897/873]	1900/1850 [897/873]
ARI Net Cooling Capacity Btu [kW]	57,500 [16.85]	57,500 [16.85]
Net Sensible Capacity Btu [kW]	40,460 [11.85]	40,460 [11.85]
Net Latent Capacity Btu [kW]	17,040 [4.99]	17,040 [4.99]
Net System Power kW	5.48	5.48
Compressor		
No./Type	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	78	78
Outdoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1
CFM [L/s]	3300 [1557]	3300 [1557]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [304.8x228.6]	1/12x9 [304.8x228.6]
Drive Type/No. Speeds	Direct/4	Direct/4
No. Motors	1	1
Motor HP	1	1
Motor RPM	1075	1075
Motor Frame Size	48	48
Filter - Type	Field Supplied	Field Supplied
Furnished	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	172.8 [4899]	172.8 [4899]
Weights		
Net Weight lbs. [kg]	532 [241]	532 [241]
Ship Weight lbs. [kg]	577 [262]	577 [262]

GENERAL DATA - RSPL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSPL- Series	B024JK	B030JK	B036CK	B036JK
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	24,400 [7.15]	29,600 [8.67]	36,800 [10.78]	36,800 [10.78]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/ARI Rated CFM [L/s]	800/800 [378/378]	1000/1000 [472/472]	1200/1200 [566/566]	1200/1200 [566/566]
ARI Net Cooling Capacity Btu [kW]	24,000 [7.03]	29,200 [8.56]	36,000 [10.55]	36,000 [10.55]
Net Sensible Capacity Btu [kW]	17,790 [5.21]	21,700 [6.36]	26,420 [7.74]	26,420 [7.74]
Net Latent Capacity Btu [kW]	6,210 [1.82]	7,500 [2.2]	9,580 [2.81]	9,580 [2.81]
Net System Power kW	2.01	2.43	3	3
Compressor				
No./Type	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	76	76	76	76
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	10.56 [0.98]	10.56 [0.98]	14.8 [1.37]	14.8 [1.37]
Rows / FPI [FPcm]	1 / 18 [7]	1 / 18 [7]	1 / 22 [9]	1 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]	5.54 [0.51]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	2500 [1180]	2500 [1180]	2700 [1274]	2700 [1274]
No. Motors/HP	1 at 1/5 HP	1 at 1/5 HP	1 at 1/5 HP	1 at 1/5 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/9x7 [228.6x177.8]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]
Drive Type/No. Speeds	Direct/2	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/3	1/2	1/2	1/2
Motor RPM	1075	1075	1075	1075
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x20x20 [25x508x508]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	77.8 [2206]	76.8 [2177]	92.8 [2631]	92.8 [2631]
Weights				
Net Weight lbs. [kg]	381 [173]	399 [181]	412 [187]	412 [187]
Ship Weight lbs. [kg]	421 [191]	439 [199]	452 [205]	452 [205]

GENERAL DATA - RSPL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSPL- Series	B042CK	B042JK	B048CK	B048JK
Cooling Performance[1]				Continued ->
Gross Cooling Capacity Btu [kW]	44,000 [12.89]	44,000 [12.89]	50,500 [14.8]	50,500 [14.8]
EER/SEER[2]	12/14	12/14	12/14	12/14
Nominal CFM/ARI Rated CFM [L/s]	1400/1400 [661/661]	1400/1400 [661/661]	1600/1600 [755/755]	1600/1600 [755/755]
ARI Net Cooling Capacity Btu [kW]	43,000 [12.6]	43,000 [12.6]	49,000 [14.36]	49,000 [14.36]
Net Sensible Capacity Btu [kW]	31,270 [9.16]	31,270 [9.16]	34,990 [10.25]	34,990 [10.25]
Net Latent Capacity Btu [kW]	11,730 [3.44]	11,730 [3.44]	14,010 [4.1]	14,010 [4.1]
Net System Power kW	3.58	3.58	4.08	4.08
Compressor				
No./Type	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	76	76	78	78
Outdoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.65 [1.55]	16.65 [1.55]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	3500 [1652]	3500 [1652]	3300 [1557]	3300 [1557]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]	1/10x9 [254x228.6]
Drive Type/No. Speeds	Direct/3	Direct/3	Direct/3	Direct/3
No. Motors	1	1	1	1
Motor HP	1/2	1/2	3/4	3/4
Motor RPM	1075	1075	1075	1075
Motor Frame Size	48	48	48	48
Filter - Type	Field Supplied	Field Supplied	Field Supplied	Field Supplied
Furnished	No	No	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]	(1)1x24x24 [25x610x610]
Refrigerant Charge Oz. [g]	112 [3175]	112 [3175]	161.2 [4570]	161.2 [4570]
Weights				
Net Weight lbs. [kg]	422 [191]	422 [191]	452 [205]	461 [209]
Ship Weight lbs. [kg]	462 [210]	462 [210]	492 [223]	501 [227]

GENERAL DATA - RSPL- MODELS
NOMINAL SIZES 2-5 TONS [7-17.6 kW]

Model RSPL- Series	B060CK	B060JK
Cooling Performance[1]		
Gross Cooling Capacity Btu [kW]	59,500 [17.43]	59,500 [17.43]
EER/SEER[2]	10.8/14	10.8/14
Nominal CFM/ARI Rated CFM [L/s]	1900/1850 [897/873]	1900/1850 [897/873]
ARI Net Cooling Capacity Btu [kW]	57,500 [16.85]	57,500 [16.85]
Net Sensible Capacity Btu [kW]	40,460 [11.85]	40,460 [11.85]
Net Latent Capacity Btu [kW]	17,040 [4.99]	17,040 [4.99]
Net System Power kW	5.32	5.32
Compressor		
No./Type	1/Copeland Scroll	1/Copeland Scroll
Outdoor Sound Rating (dB)[5]	78	78
Outdoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	16.23 [1.51]	16.23 [1.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	7.39 [0.69]	7.39 [0.69]
Rows / FPI [FPcm]	2 / 15 [6]	2 / 15 [6]
Refrigerant Control	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/0.75 [19.05]	1/0.75 [19.05]
Outdoor Fan - Type	Propeller	Propeller
No. Used/Diameter in. [mm]	1/22 [558.8]	1/22 [558.8]
Drive Type/No. Speeds	Direct/1	Direct/1
CFM [L/s]	3300 [1557]	3300 [1557]
No. Motors/HP	1 at 1/3 HP	1 at 1/3 HP
Motor RPM	1075	1075
Indoor Fan - Type	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/12x9 [304.8x228.6]	1/12x9 [304.8x228.6]
Drive Type/No. Speeds	Direct/4	Direct/4
No. Motors	1	1
Motor HP	1	1
Motor RPM	1075	1075
Motor Frame Size	48	48
Filter - Type	Field Supplied	Field Supplied
Furnished	No	No
(NO.) Size Recommended in. [mm x mm x mm]	(1)1x24x30 [25x610x762]	(1)1x24x30 [25x610x762]
Refrigerant Charge Oz. [g]	172.8 [4899]	172.8 [4899]
Weights		
Net Weight lbs. [kg]	532 [241]	532 [241]
Ship Weight lbs. [kg]	577 [262]	577 [262]

NOTES:

1. Cooling Performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F entering wet bulb. Gross capacity does not include the effect of fan motor heat. ARI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on ARI Standard 210/240 or 360.
2. EER and/or SEER are rated at ARI conditions and in accordance with DOE test procedures.
3. Outdoor Sound Rating shown is tested in accordance with ARI Standard 270.

[ ] Designates Metric Conversions

XX. ELECTRICAL DATA

ELECTRICAL DATA – RSNL- SERIES

		-B024JK	-B030JK	-B036CK	-B036JK	-B042CK	-B042JK	-B048CK	-B048JK	-C060CK	-C060JK
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	187-253	187-253	187-253	187-253	187-253	197-253	197-253
	Minimum Circuit Ampacity	19/19	22/22	17/17	25/25	22/22	27/27	24/24	34/34	32/32	43/43
	Minimum Overcurrent Protection Device Size	20/20	25/25	20/20	25/25	25/25	30/30	25/25	35/35	35/35	45/45
	Maximum Overcurrent Protection Device Size	30/30	35/35	25/25	40/40	30/30	40/40	35/35	50/50	45/45	60/60
Compressor Motor	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	3	1	3	1	3	1	3	1
	HP	2 1/6	2 2/3	3 1/3	3 1/3	3 1/2	3 1/2	4	4	5	5
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450
	Amps (FLA)	12.8/12.8	14.1/14.1	10.4/10.4	16.7/16.7	13.5/13.5	17.9/17.9	13.7/13.7	21.8/21.8	17.9/17.9	26.4/26.4
	Amps (LRA)	58.3/58.3	73/73	88/88	79/79	88/88	112/112	83.1/83.1	117/117	110/110	134/134
Condenser Motor	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1	1
	HP	1/5	1/5	1/5	1/5	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA)	1.3	1.3	1.3	1.3	2	2	2	2	2	2
	Amps (LRA)	2.3	2.3	2.3	2.3	3.9	3.9	3.9	3.9	3.9	3.9
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1	1
	HP	1/4	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1
	Amps (FLA)	1.3	2.4	2.4	2.4	2.4	2.4	4.4	4.4	7.6	7.6
	Amps (LRA)	2.3	5.1	5.1	5.1	5.1	5.1	9.5	9.5	0	0

ELECTRICAL DATA – RSPL- SERIES

		-B024JK	-B030JK	-B036CK	-B036JK	-B042CK	-B042JK	-B048CK	-B048JK	-B060CK	-B060JK
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	187-253	187-253	187-253	187-253	187-253	197-253	197-253
	Minimum Circuit Ampacity	21/21	24/24	19/19	27/27	24/24	29/29	26/26	36/36	32/32	42/42
	Minimum Overcurrent Protection Device Size	25/25	25/25	20/20	30/30	25/25	30/30	30/30	40/40	35/35	45/45
	Maximum Overcurrent Protection Device Size	30/30	35/35	25/25	40/40	35/35	45/45	35/35	50/50	45/45	60/60
Compressor Motor	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	3	1	3	1	3	1	3	1
	HP	2 1/6	2 2/3	3 1/3	3 1/3	3 1/2	3 1/2	4	4	5	5
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450
	Amps (FLA)	12.8/12.8	14.1/14.1	10.4/10.4	16.7/16.7	13.5/13.4	17.9/17.9	13.7/13.7	21.8/21.8	17.6/17.6	25.6/25.6
	Amps (LRA)	58.3/58.3	73/73	88/88	79/79	88/88	112/112	83.1/83.1	117/117	135/135	118/118
Condenser Motor	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1	1
	HP	1/5	1/5	1/5	1/5	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA)	1.3	1.3	1.3	1.3	2	2	2	2	2	2
	Amps (LRA)	2.3	2.3	2.3	2.3	3.9	3.9	3.9	3.9	3.9	3.9
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
	Phase	1	1	1	1	1	1	1	1	1	1
	HP	1/3	1/2	1/2	1/2	1/2	1/2	3/4	3/4	1	1
	Amps (FLA)	2.8	4.1	4.1	4.1	4.1	4.1	6	6	7.6	7.6
	Amps (LRA)	0	0	0	0	0	0	0	0	0	0

ELECTRICAL DATA NOTES 1. Horsepower per compressor. 2. Amp Draw per Motor. Multiply Value by Number of Motors to Determine Total Amps.

INDOOR AIRFLOW PERFORMANCE — 230 VOLTS

Nominal Cooling Capacity Tons [kW]	Motor Speed From Factory		Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure — Inches W.C. [kPa] Side Discharge — Wet Coil							
	Cool	Heat				0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]
2.0 [7.03]	High	High	9 x 7 Blower 1/4 HP [186W] 2 Speed (PSC Motor)	Low	CFM [l/s]	771 [364]	751 [354]	725 [342]	691 [326]	654 [304]	584 [276]	546 [258]	
					RPM	825	870	910	950	985	1010	1030	
					Watts	253	242	230	217	204	189	181	
				High	CFM [l/s]	946 [446]	922 [435]	882 [416]	830 [392]	769 [363]	701 [331]	630 [298]	
					RPM	990	1015	1035	1055	1070	1085	1100	
					Watts	315	303	288	273	257	241	226	
2.5 [8.79]	Low	Low	10 x 9 Blower 1/2 HP [343W] 3 Speed (PSC Motor)	Low	CFM [l/s]	1206 [569]	1182 [558]	1157 [546]	1128 [532]	1091 [515]	1044 [493]	983 [464]	
					RPM	760	815	870	910	950	975	1000	
					Watts	419	406	394	381	368	353	334	
3.0 [10.55]	Med	Med		Med	CFM [l/s]	1411 [666]	1368 [646]	1327 [626]	1285 [606]	1238 [584]	1183 [558]	1116 [527]	
					RPM	865	900	935	970	1000	1020	1035	
					Watts	498	481	464	447	430	411	391	
3.5 [12.31]	High	High		High	CFM [l/s]	1641 [774]	1577 [744]	1515 [715]	1455 [687]	1393 [657]	1329 [627]	1262 [596]	
					RPM	980	1000	1020	1035	1050	1065	1080	
					Watts	589	565	543	523	503	481	456	
4.0 [14.07]	Med	Med	10 x 9 Blower 3/4 HP [559W] 3 Speed (PSC Motor)	Low	CFM [l/s]	1412 [666]	1395 [658]	1371 [647]	1339 [632]	1296 [612]	1242 [586]	1176 [555]	
					RPM	859	905	951	981	1011	1034	1057	
					Watts	557	530	506	483	461	437	409	
				Med	CFM [l/s]	1793[846]	1731[817]	1665 [786]	1594 [752]	1519 [717]	1440 [680]	1356 [640]	
					RPM	1053	1067	1080	1091	1101	1110	1119	
					Watts	667	637	606	574	543	512	483	
				High	CFM [l/s]	1889[892]	1826[862]	1753[827]	1672 [789]	1586 [749]	1499 [707]	1413 [667]	
					RPM	1110	1117	1124	1129	1133	1139	1144	
					Watts	736	715	683	646	608	574	551	
5.0 [17.59]	High (Tap 4)	High (Tap 2)	12 x 9 Blower 1 HP [746W] 4 Speed (X-13 Motor)	Heat Low (Tap 1)	CFM [l/s]	1319 [622]	1289 [608]	1242 [586]	1201 [567]	1148 [542]	1111 [524]	1047 [494]	985 [465]
					RPM	728	760	790	832	859	894	939	992
					Watts	222	234	241	256	263	276	287	304
				Heat High (Tap 2)	CFM [l/s]	1423 [672]	1390 [656]	1357 [640]	1311 [619]	1277 [603]	1233 [582]	1192 [563]	1137 [537]
					RPM	776	796	830	861	895	927	958	999
					Watts	272	278	292	300	315	326	337	352
				Cool Low (Tap 3)	CFM [l/s]	1872 [883]	1847 [872]	1808 [853]	1772 [836]	1743 [823]	1703 [804]	1670 [788]	1639 [774]
					RPM	956	973	1010	1023	1057	1085	1110	1146
					Watts	562	572	584	598	613	622	636	646
				Cool High (Tap 4)	CFM [l/s]	2046 [966]	2010 [949]	1980 [934]	1942 [917]	1904 [899]	1867 [881]	1822 [860]	1758 [830]
					RPM	1035	1046	1079	1086	1114	1141	1171	1163
					Watts	721	731	743	754	770	777	770	751

NOTES:
5 ton cooling speed must be changed to Low to achieve ARI performance.

INDOOR AIRFLOW PERFORMANCE — 208 VOLTS

Nominal Cooling Capacity Tons [kW]	Motor Speed From Factory		Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure — Inches W.C. [kPa] Side Discharge — Wet Coil							
	Cool	Heat				0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]
2.0 [7.03]	High	High	9 x 7 Blower 1/4 HP [186W] 2 Speed (PSC Motor)	Low	CFM [l/s]	675 [319]	657 [310]	634 [299]	602 [284]	560 [264]	505 [238]	435 [205]	
					RPM	695	785	870	905	940	980	1020	
					Watts	221	214	203	191	171	193	149	
				High	CFM [l/s]	898 [424]	861 [406]	822 [388]	777 [367]	721 [340]	651 [307]	562 [265]	
					RPM	940	965	995	1020	1045	1070	1090	
					Watts	292	278	266	253	239	221	199	
2.5 [8.79]	Low	Low	10 x 9 Blower 1/2 HP [373W] 3 Speed (PSC Motor)	Low	CFM [l/s]	1076 [508]	1059 [500]	1032 [490]	996 [470]	950 [448]	896 [423]	832 [393]	
					RPM	730	775	820	865	905	940	975	
					Watts	356	349	341	331	320	305	287	
3.0 [10.55]	Med	Med		Med	CFM [l/s]	1222 [577]	1197 [565]	1179 [556]	1162 [548]	1137 [537]	1097 [518]	1033 [488]	
					RPM	765	810	855	890	920	960	995	
					Watts	423	415	407	397	386	370	351	
3.5 [12.31]	High	High		High	CFM [l/s]	1514 [715]	1461 [670]	1415 [668]	1370 [647]	1322 [624]	1266 [597]	1197 [565]	
					RPM	895	930	965	985	1005	1025	1045	
					Watts	538	514	493	473	454	434	412	
4.0 [14.07]	Med	Med	10 x 9 Blower 3/4 HP [559W] 3 Speed (PSC Motor)	Low	CFM [l/s]	1204 [568]	1202 [567]	1191 [562]	1171 [553]	1143 [539]	1107 [522]	1065 [503]	
					RPM	734	810	886	923	959	988	1016	
					Watts	476	468	450	427	403	380	363	
				Med	CFM [l/s]	1674 [790]	1620 [765]	1566 [739]	1511 [713]	1451 [685]	1384 [653]	1305 [616]	
					RPM	997	1019	1040	1058	1076	1088	1100	
					Watts	625	596	567	539	512	484	455	
				High	CFM [l/s]	1843[870]	1763[832]	1693 [799]	1627 [768]	1560 [736]	1485 [701]	1398 [660]	
					RPM	1085	1094	1102	1110	1118	1126	1134	
					Watts	699	663	632	604	576	548	517	
5.0 [17.59]	High (Tap 4)	High (Tap 2)	12 x 9 Blower 1 HP [746W] 4 Speed (X-13 Motor)	Heat Low (Tap 1)	CFM [l/s]	1310 [618]	1288 [608]	1238 [584]	1204 [568]	1149 [542]	1104 [521]	1035 [488]	971 [458]
					RPM	731	757	789	826	857	894	937	993
					Watts	218	229	237	250	258	270	280	294
				Heat High (Tap 2)	CFM [l/s]	1418 [669]	1386 [654]	1352 [638]	1307 [617]	1270 [599]	1221 [576]	1180 [557]	1117 [527]
					RPM	774	794	829	860	892	922	955	1015
					Watts	267	273	287	295	308	316	328	343
				Cool Low (Tap 3)	CFM [l/s]	1858 [877]	1821 [859]	1782 [841]	1752 [827]	1714 [809]	1678 [792]	1640 [774]	1607 [758]
					RPM	944	968	994	1019	1041	1072	1089	1111
					Watts	541	555	564	578	586	598	611	617
				Cool High (Tap 4)	CFM [l/s]	2017 [952]	1985 [937]	1949 [920]	1909 [901]	1879 [887]	1843 [870]	1792 [846]	1737 [820]
					RPM	1018	1033	1070	1076	1112	1124	1147	1152
					Watts	690	701	711	723	735	741	742	728

NOTES:

5 ton cooling speed must be changed to Low to achieve ARI performance.

DOWN DISCHARGE PRESSURE DROP (ADD TO EXTERNAL STATIC PRESSURE)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1440 [661]	1600 [755]	1800 [850]	2000 [944]
Pressure Drop—Inches W.C. [kPa]	.00	.01 [.002]	.02 [.005]	.03 [.007]	.05 [.012]	.07 [.017]	.08 [.019]	.09 [.022]
MINIMUM RECOMMENDED FILTER SIZES								
Nominal Cooling Capacity Tons [kW]	2.0 [7.03]		2.5 [8.79] – 4.0 [14.07]			5.0 [17.59]		
Minimum Filter Size—Inches [mm]	20 x 20 x 1 [508 x 508 x 25]		24 x 24 x 1 [610 x 610 x 25]			24 x 30 x 1 [610 x 762 x 1]		

RSPL Indoor Airflow Performance - 230 Volts

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure - Inches W.C. [kPa] (Side Discharge-Wet Coil)							
	Cool	Heat				0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]
2.0 [7.03]	High (Tap 3)	High (Tap 3)	9 x 7 Blower 1/3 HP [249 W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	829 [391]	808 [381]	789 [372]	756 [357]	737 [348]	697 [329]	668 [315]	615 [290]
					RPM	890	915	961	1000	1046	1089	1121	1173
					Watts	137	139	148	151	160	163	166	167
				Med. (Tap 2)	CFM [l/s]	853 [403]	832 [393]	804 [379]	779 [368]	745 [352]	724 [342]	688 [325]	630 [297]
					RPM	901	928	984	1013	1054	1099	1137	1185
					Watts	146	149	159	161	165	173	176	173
				High (Tap 3)	CFM [l/s]	912 [430]	896 [423]	863 [407]	839 [396]	815 [385]	787 [371]	736 [347]	656 [310]
					RPM	940	977	1017	1062	1088	1139	1165	1181
					Watts	171	179	183	192	194	203	199	182
2.5 [8.79]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1039 [490]	1021 [482]	971 [458]	932 [440]	887 [419]	839 [396]	797 [376]	735 [347]
					RPM	798	833	878	922	955	1011	1061	1093
					Watts	159	168	175	185	189	200	210	213
				Med. (Tap 2)	CFM [l/s]	1169 [552]	1140 [538]	1111 [524]	1068 [504]	1030 [486]	995 [470]	949 [448]	895 [422]
					RPM	868	893	932	978	1010	1048	1086	1129
					Watts	213	217	228	239	244	254	258	268
				High (Tap 3)	CFM [l/s]	1256 [593]	1231 [581]	1201 [567]	1161 [548]	1115 [526]	1076 [508]	1043 [492]	999 [471]
					RPM	921	942	976	1018	1053	1093	1131	1149
					Watts	259	263	272	284	290	299	309	307
3.0 [10.55]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1169 [552]	1140 [538]	1111 [524]	1068 [504]	1030 [486]	995 [470]	949 [448]	895 [422]
					RPM	868	893	932	978	1010	1048	1086	1129
					Watts	213	217	228	239	244	254	258	268
				Med. (Tap 2)	CFM [l/s]	1256 [593]	1231 [581]	1201 [567]	1161 [548]	1115 [526]	1076 [508]	1043 [492]	999 [471]
					RPM	921	942	976	1018	1053	1093	1131	1149
					Watts	259	263	272	284	290	299	309	307
				High (Tap 3)	CFM [l/s]	1357 [640]	1330 [628]	1292 [610]	1262 [596]	1225 [578]	1178 [556]	1110 [524]	1033 [488]
					RPM	974	1003	1036	1071	1103	1134	1153	1169
					Watts	318	323	333	343	347	356	345	328
3.5 [12.31]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1241 [586]	1203 [568]	1155 [545]	1119 [528]	1082 [511]	1032 [487]	994 [469]	950 [448]
					RPM	771	815	848	886	932	965	1004	1044
					Watts	155	162	170	182	193	200	210	220
				Med. (Tap 2)	CFM [l/s]	1459 [689]	1438 [679]	1409 [665]	1371 [647]	1337 [631]	1296 [612]	1258 [594]	1223 [577]
					RPM	931	958	993	1031	1058	1097	1133	1158
					Watts	308	319	331	339	349	362	373	381
				High (Tap 3)	CFM [l/s]	1562 [737]	1538 [726]	1500 [708]	1456 [687]	1434 [677]	1383 [653]	1339 [632]	1270 [599]
					RPM	960	991	1017	1055	1089	1121	1154	1169
					Watts	353	364	375	388	398	408	418	405
4.0 [14.07]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 3/4 HP [559W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1459 [689]	1438 [679]	1409 [665]	1371 [647]	1337 [631]	1296 [612]	1258 [594]	1223 [577]
					RPM	931	958	993	1031	1058	1097	1133	1158
					Watts	308	319	331	339	349	362	373	381
				Med. (Tap 2)	CFM [l/s]	1662 [784]	1648 [778]	1607 [758]	1579 [745]	1538 [726]	1477 [697]	1392 [657]	1305 [616]
					RPM	1016	1037	1072	1098	1129	1156	1169	1179
					Watts	421	429	443	453	465	465	446	420
				High (Tap 3)	CFM [l/s]	1910 [901]	1873 [884]	1798 [849]	1715 [809]	1621 [765]	1536 [725]	1422 [671]	1323 [624]
					RPM	1149	1160	1163	1169	1175	1187	1184	1205
					Watts	638	625	601	571	536	506	469	440
5.0 [17.59]	1st Stage High (Tap 2) ------- 2nd Stage High (Tap 4)	High (Tap 2)	12 x 9 Blower 1 HP [746W] 4 Speed X13 Motor	Heat / 1st Stage Cool Low (Tap 1)	CFM [l/s]	1319 [622]	1289 [608]	1242 [586]	1201 [567]	1148 [542]	1111 [524]	1047 [494]	985 [465]
					RPM	728	760	790	832	859	894	939	992
					Watts	222	234	241	256	263	276	287	304
				Heat / 1st Stage Cool High (Tap 2)	CFM [l/s]	1423 [672]	1390 [656]	1357 [640]	1311 [619]	1277 [603]	1233 [582]	1192 [563]	1137 [537]
					RPM	776	796	830	861	895	927	958	999
					Watts	272	278	292	300	315	326	337	352
				2nd Stage Cool Low (Tap 3)	CFM [l/s]	1872 [883]	1847 [872]	1808 [853]	1772 [836]	1743 [823]	1703 [804]	1670 [788]	1639 [774]
					RPM	956	973	1010	1023	1057	1085	1110	1146
					Watts	562	572	584	598	613	622	636	646
				2nd Stage Cool High (Tap 4)	CFM [l/s]	2046 [966]	2010 [949]	1980 [934]	1942 [917]	1904 [899]	1867 [881]	1822 [860]	1758 [830]
					RPM	1035	1046	1079	1086	1114	1141	1171	1163
					Watts	721	731	743	754	770	777	770	751

Notes: (1) Do not operate 2 ton models below 700 CFM. (2) Do not operate 2-1/2 or 3 ton models below 875 CFM. (3) Cooling speed must be adjusted as follows to achieve ARI performance: Medium speed for 2, 3, 3-1/2, and 4 ton models; Low speed for 2-1/2, 1st & 2nd stage 5 ton.

Down Discharge Pressure Drop (Add to External Static Pressure)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	0	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

RSPL Indoor Airflow Performance - 208 Volts

Nominal Cooling Capacity Tons [kW]	Motor Speed from Factory		Blower Size/ Motor HP [W] & # of Speeds	Motor Speed		External Static Pressure - Inches W.C. [kPa] (Side Discharge-Wet Coil)							
	Cool	Heat				0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]	0.8 [.20]
2.0 [7.03]	High (Tap 3)	High (Tap 3)	9 x 7 Blower 1/3 HP [249 W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	821 [387]	799 [377]	775 [366]	742 [350]	706 [333]	681 [321]	641 [303]	611 [288]
					RPM	878	903	953	996	1032	1075	1119	1176
					Watts	131	134	142	145	147	154	156	161
				Med. (Tap 2)	CFM [l/s]	843 [398]	820 [387]	786 [371]	760 [359]	726 [343]	699 [330]	662 [312]	608 [287]
					RPM	896	924	961	1015	1045	1092	1125	1172
					Watts	141	144	147	155	157	163	165	164
				High (Tap 3)	CFM [l/s]	896 [423]	884 [417]	847 [400]	825 [389]	789 [372]	752 [355]	720 [340]	642 [303]
					RPM	935	966	1008	1047	1084	1118	1154	1176
					Watts	165	171	175	182	184	186	189	174
2.5 [8.79]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1030 [486]	1010 [477]	967 [456]	922 [435]	868 [410]	825 [389]	763 [360]	709 [335]
					RPM	794	829	868	912	956	1002	1040	1093
					Watts	155	164	169	178	183	192	195	203
				Med. (Tap 2)	CFM [l/s]	1153 [544]	1126 [531]	1087 [513]	1042 [492]	1002 [473]	966 [456]	903 [426]	856 [404]
					RPM	866	887	930	966	1010	1038	1082	1121
					Watts	207	210	220	226	234	241	246	251
				High (Tap 3)	CFM [l/s]	1242 [586]	1213 [572]	1173 [554]	1132 [534]	1086 [513]	1044 [493]	1003 [473]	952 [449]
					RPM	912	934	972	1012	1055	1081	1109	1146
					Watts	249	252	262	271	275	282	283	288
3.0 [10.55]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1153 [544]	1126 [531]	1087 [513]	1042 [492]	1002 [473]	966 [456]	903 [426]	856 [404]
					RPM	866	887	930	966	1010	1038	1082	1121
					Watts	207	210	220	226	234	241	246	251
				Med. (Tap 2)	CFM [l/s]	1242 [586]	1213 [572]	1173 [554]	1132 [534]	1086 [513]	1044 [493]	1003 [473]	952 [449]
					RPM	912	934	972	1012	1055	1081	1109	1146
					Watts	249	252	262	271	275	282	283	288
				High (Tap 3)	CFM [l/s]	1338 [631]	1309 [618]	1278 [603]	1234 [582]	1182 [558]	1135 [536]	1087 [513]	1007 [475]
					RPM	963	983	1016	1049	1096	1121	1142	1159
					Watts	304	307	316	321	328	332	330	315
3.5 [12.31]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 1/2 HP [373W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1228 [580]	1187 [560]	1140 [538]	1105 [522]	1062 [501]	1008 [476]	959 [453]	911 [430]
					RPM	761	808	841	884	920	960	999	1038
					Watts	150	170	180	183	185	190	195	215
				Med. (Tap 2)	CFM [l/s]	1454 [686]	1433 [676]	1392 [657]	1354 [639]	1322 [624]	1283 [606]	1238 [584]	1192 [563]
					RPM	923	946	976	1015	1044	1085	1126	1146
					Watts	301	309	316	327	337	348	356	363
				High (Tap 3)	CFM [l/s]	1544 [729]	1531 [723]	1473 [695]	1440 [680]	1398 [660]	1361 [642]	1317 [622]	1263 [596]
					RPM	958	973	1025	1046	1078	1109	1147	1163
					Watts	343	350	364	371	382	391	401	396
4.0 [14.07]	High (Tap 3)	High (Tap 3)	10 x 9 Blower 3/4 HP [559W] 3 Speed X13 Motor	Low (Tap 1)	CFM [l/s]	1454 [686]	1433 [676]	1392 [657]	1354 [639]	1322 [624]	1283 [606]	1238 [584]	1192 [563]
					RPM	923	946	976	1015	1044	1085	1126	1146
					Watts	301	309	316	327	337	348	356	363
				Med. (Tap 2)	CFM [l/s]	1642 [775]	1621 [765]	1584 [748]	1542 [728]	1496 [706]	1451 [685]	1396 [659]	1299 [613]
					RPM	1006	1022	1064	1090	1114	1151	1160	1172
					Watts	405	412	422	435	442	449	440	414
				High (Tap 3)	CFM [l/s]	1896 [895]	1863 [879]	1776 [838]	1694 [799]	1603 [757]	1528 [721]	1424 [672]	1316 [621]
					RPM	1146	1147	1159	1171	1173	1180	1188	1195
					Watts	624	614	583	554	522	497	467	432
5.0 [17.59]	1st Stage High (Tap 2) ------- 2nd Stage High (Tap 4)	High (Tap 2)	12 x 9 Blower 1 HP [746W] 4 Speed X13 Motor	Heat / 1st Stage Cool Low (Tap 1)	CFM [l/s]	1310 [618]	1288 [608]	1238 [584]	1204 [568]	1149 [542]	1104 [521]	1035 [488]	971 [458]
					RPM	731	757	789	826	857	894	937	993
					Watts	218	229	237	250	258	270	280	294
				Heat / 1st Stage Cool High (Tap 2)	CFM [l/s]	1418 [669]	1386 [654]	1352 [638]	1307 [617]	1270 [599]	1221 [576]	1180 [557]	1117 [527]
					RPM	774	794	829	860	892	922	955	1015
					Watts	267	273	287	295	308	316	328	343
				2nd Stage Cool Low (Tap 3)	CFM [l/s]	1858 [877]	1821 [859]	1782 [841]	1752 [827]	1714 [809]	1678 [792]	1640 [774]	1607 [758]
					RPM	944	968	994	1019	1041	1072	1089	1111
					Watts	541	555	564	578	586	598	611	617
				2nd Stage Cool High (Tap 4)	CFM [l/s]	2017 [952]	1985 [937]	1949 [920]	1909 [901]	1879 [887]	1843 [870]	1792 [846]	1737 [820]
					RPM	1018	1033	1070	1076	1112	1124	1147	1152
					Watts	690	701	711	723	735	741	742	728

Notes: (1) Do not operate 2 ton models below 700 CFM. (2) Do not operate 2-1/2 or 3 ton models below 875 CFM. (3) Cooling speed must be adjusted as follows to achieve ARI performance: Medium speed for 2, 3, 3-1/2, and 4 ton models; Low speed for 2-1/2, 1st & 2nd stage 5 ton.

Down Discharge Pressure Drop (Add to External Static Pressure)								
CFM [L/s]	600 [283]	800 [378]	1000 [472]	1200 [566]	1400 [661]	1600 [755]	1800 [849]	2000 [944]
Pressure Drop - Inches W.C. [kPa]	0	.02 [.005]	.05 [.012]	.07 [.017]	.1 [.025]	.12 [.030]	.15 [.037]	.17 [.042]

208-240 VOLT, SINGLE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Heater Kit							Separate Power Supply For Unit, Heater Kit And Air Conditioner							
	Heater Kit						Unit			Heater Kit		Air Conditioner		
Unit Model No. RSNL-	Model No. RXQJ-	No. of Elements	No. of Sequence Steps	kW 208/240V	KBTU/Hr 208/240V	Amps 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V	Min. Circuit Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V
B024JK	No Heat	-	-	-	-	-	19/19	20/30	20/30	-	-	19/19	20/30	20/30
	A05J	1	1	3.6/4.8	12.28/16.38	17.3/20.0	24/27	25/30	30/30	22/25	25/25	-	-	-
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	46/52	50/50	60/60	44/50	45/50	-	-	-
B030JK	No Heat	-	-	-	-	-	22/22	25/35	25/35	-	-	22/22	25/35	25/35
	A05J	1	1	3.6/4.8	12.28/16.38	17.3/20.0	25/28	25/35	30/35	22/25	25/25	-	-	-
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	47/53	50/50	60/60	44/50	45/50	-	-	-
B036JK	No Heat	-	-	-	-	-	25/25	25/40	25/40	-	-	25/25	25/40	25/40
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	47/53	50/50	60/60	44/50	45/50	-	-	-
	A15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	68/78	70/70	80/80	65/75	70/80	-	-	-
B042JK	No Heat	-	-	-	-	-	27/27	30/40	30/40	-	-	27/27	30/40	30/40
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	47/53	50/50	60/60	44/50	45/50	-	-	-
	A15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	68/79	70/70	80/80	65/75	70/80	-	-	-
B048JK	No Heat	-	-	-	-	-	34/34	35/50	35/50	-	-	34/34	35/50	35/50
	B10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	49/56	50/50	60/60	44/50	45/50	-	-	-
	B15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	71/81	80/80	90/90	65/75	70/80	-	-	-
C036JK	No Heat	-	-	-	-	-	42/42	45/60	45/60	-	-	42/42	45/60	45/60
	B10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	53/60	60/60	60/60	44/50	45/50	-	-	-
	B15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	75/85	80/80	90/90	65/75	70/80	-	-	-

208-240 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Heater Kit							Separate Power Supply For Unit, Heater Kit And Air Conditioner							
	Heater Kit						Unit			Heater Kit		Air Conditioner		
Unit Model No. RSNL-	Model No. RXQJ-	No. of Elements	No. of Sequence Steps	kW 208/240V	KBTU/Hr 208/240V	Amps 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V	Min. Circuit Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V
B036CK	No Heat	-	-	-	-	-	17/17	20/25	20/25	-	-	17/17	20/25	20/25
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	28/32	30/30	35/35	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	41/47	45/45	50/50	38/44	40/45	-	-	-
B042CK	No Heat			-	-	-	22/22	25/30	25/30	-	-	22/22	25/30	25/30
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	28/32	30/30	35/35	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	41/47	45/45	50/50	38/44	40/45	-	-	-
B048CK	No Heat			-	-	-	24/24	25/35	25/35	-	-	24/24	25/35	25/35
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	31/35	35/35	35/35	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	44/49	45/45	50/50	38/44	40/45	-	-	-
C060CK	No Heat			-	-	-	32/32	35/45	35/45	-	-	32/32	35/45	35/45
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	35/39	35/45	40/45	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	48/53	50/50	60/60	38/44	40/45	-	-	-

208-240 VOLT, SINGLE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Heater Kit							Separate Power Supply For Unit, Heater Kit And Air Conditioner							
	Heater Kit						Unit			Heater Kit		Air Conditioner		
Unit Model No. RSPL-	Model No. RXQJ-	No. of Elements	No. of Sequence Steps	kW 208/240V	KBTU/Hr 208/240V	Amps 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V	Min. Circuit Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V
B024JK	No Heat	-	-	-	-	-	21/21	25/30	25/30	-	-	21/21	25/30	25/30
	A05J	1	1	3.6/4.8	12.28/16.38	17.3/20.0	26/29	30/30	30/30	22/25	25/25	-	-	-
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	47/54	50/50	60/60	44/50	45/50	-	-	-
B030JK	No Heat	-	-	-	-	-	24/24	25/35	25/35	-	-	24/24	25/35	25/35
	A05J	1	1	3.6/4.8	12.28/16.38	17.3/20.0	27/31	30/35	35/35	22/25	25/25	-	-	-
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	49/56	50/50	60/60	44/50	45/50	-	-	-
B036JK	No Heat	-	-	-	-	-	27/27	30/40	30/40	-	-	27/27	30/40	30/40
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	49/56	50/50	60/60	44/50	45/50	-	-	-
	A15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	70/81	70/70	90/90	65/75	70/80	-	-	-
B042JK	No Heat	-	-	-	-	-	29/29	30/45	30/45	-	-	29/29	30/45	30/45
	A10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	49/56	50/50	60/60	44/50	45/50	-	-	-
	A15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	70/81	70/70	90/90	65/75	70/80	-	-	-
B048JK	No Heat	-	-	-	-	-	36/36	40/50	40/50	-	-	36/36	40/50	40/50
	B10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	51/58	60/60	60/60	44/50	45/50	-	-	-
	B15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	73/83	80/80	90/90	65/75	70/80	-	-	-
B060JK	No Heat	-	-	-	-	-	42/42	45/60	45/60	-	-	42/42	45/60	45/60
	B10J	2	1	7.2/9.6	24.57/32.76	34.6/40.0	53/60	60/60	60/60	44/50	45/50	-	-	-
	B15J	3	1	10.8/14.4	36.85/49.13	51.9/60.0	75/85	80/80	90/90	65/75	70/80	-	-	-

208-240 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Heater Kit							Separate Power Supply For Unit, Heater Kit And Air Conditioner							
	Heater Kit						Unit			Heater Kit		Air Conditioner		
Unit Model No. RSPL-	Model No. RXQJ-	No. of Elements	No. of Sequence Steps	kW 208/240V	KBTU/Hr 208/240V	Amps 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V	Min. Circuit Ampacity 208/240V	Max. Fuse Size 208/240V	Min. Circuit Ampacity 208/240V	Overcurrent Protective Device Size Min./Max. @ 208 V	Overcurrent Protective Device Size Min./Max. @ 240 V
B036CK	No Heat	-	-	-	-	-	19/19	20/25	20/25	-	-	19/19	20/25	20/25
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	31/34	35/35	35/35	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	43/49	45/45	50/50	38/44	40/45	-	-	-
B042CK	No Heat			-	-	-	24/24	25/35	25/35	-	-	24/24	25/35	25/35
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	31/34	35/35	35/35	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	43/49	45/45	50/50	38/44	40/45	-	-	-
B048CK	No Heat			-	-	-	26/26	30/35	30/35	-	-	26/26	30/35	30/35
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	33/37	35/35	40/40	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	46/51	50/50	60/60	38/44	40/45	-	-	-
B060CK	No Heat			-	-	-	32/32	35/45	35/45	-	-	32/32	35/45	35/45
	A10C			7.2/9.6	24.57/32.76	20.0/23.1	35/39	35/45	40/45	25/29	25/30	-	-	-
	A15C			10.8/14.4	36.85/49.13	30.1/34.7	48/53	50/50	60/60	38/44	40/45	-	-	-

XXIII. WIRING DIAGRAMS

FIGURE 14
WIRING DIAGRAM

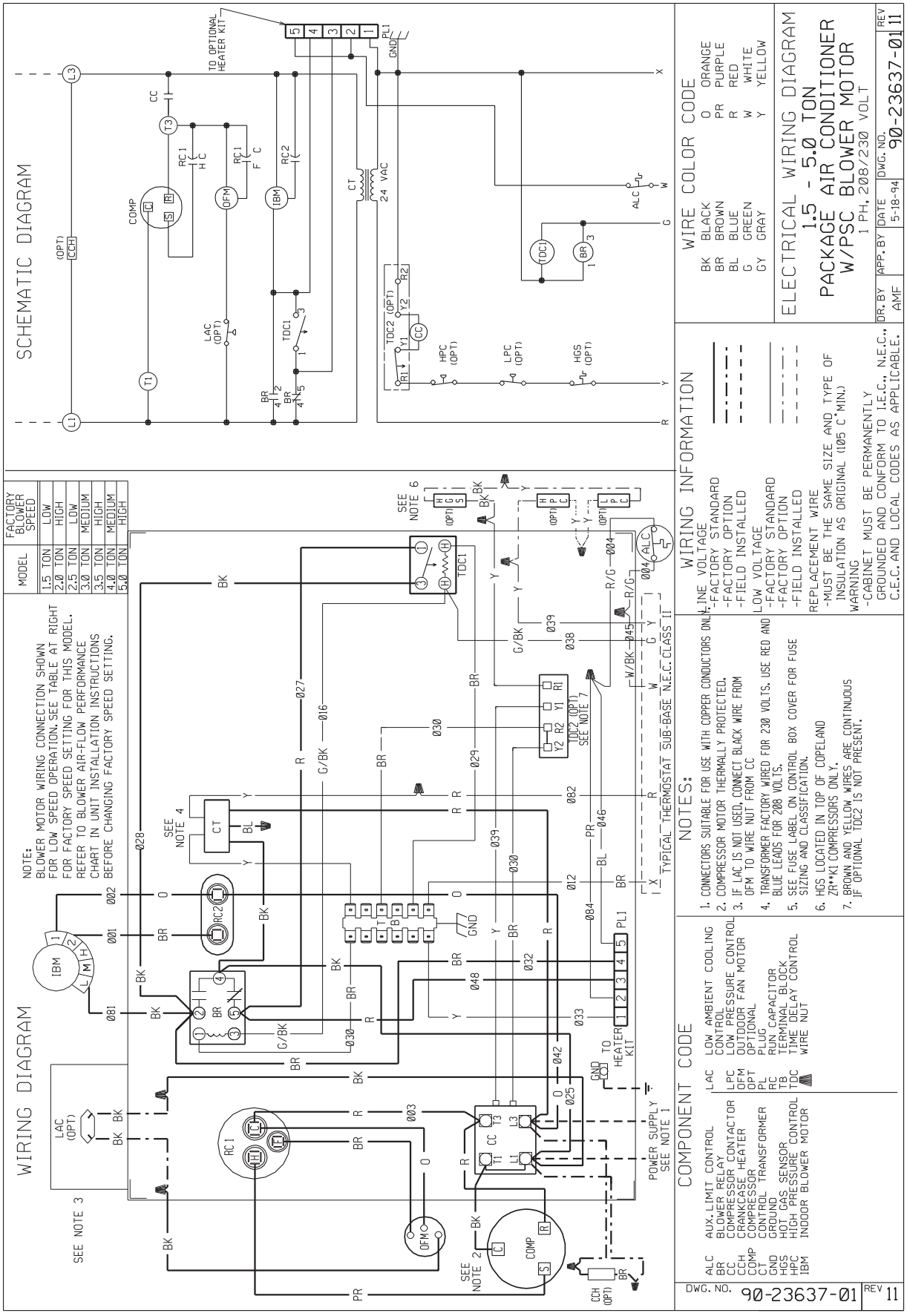


FIGURE 15
WIRING DIAGRAM

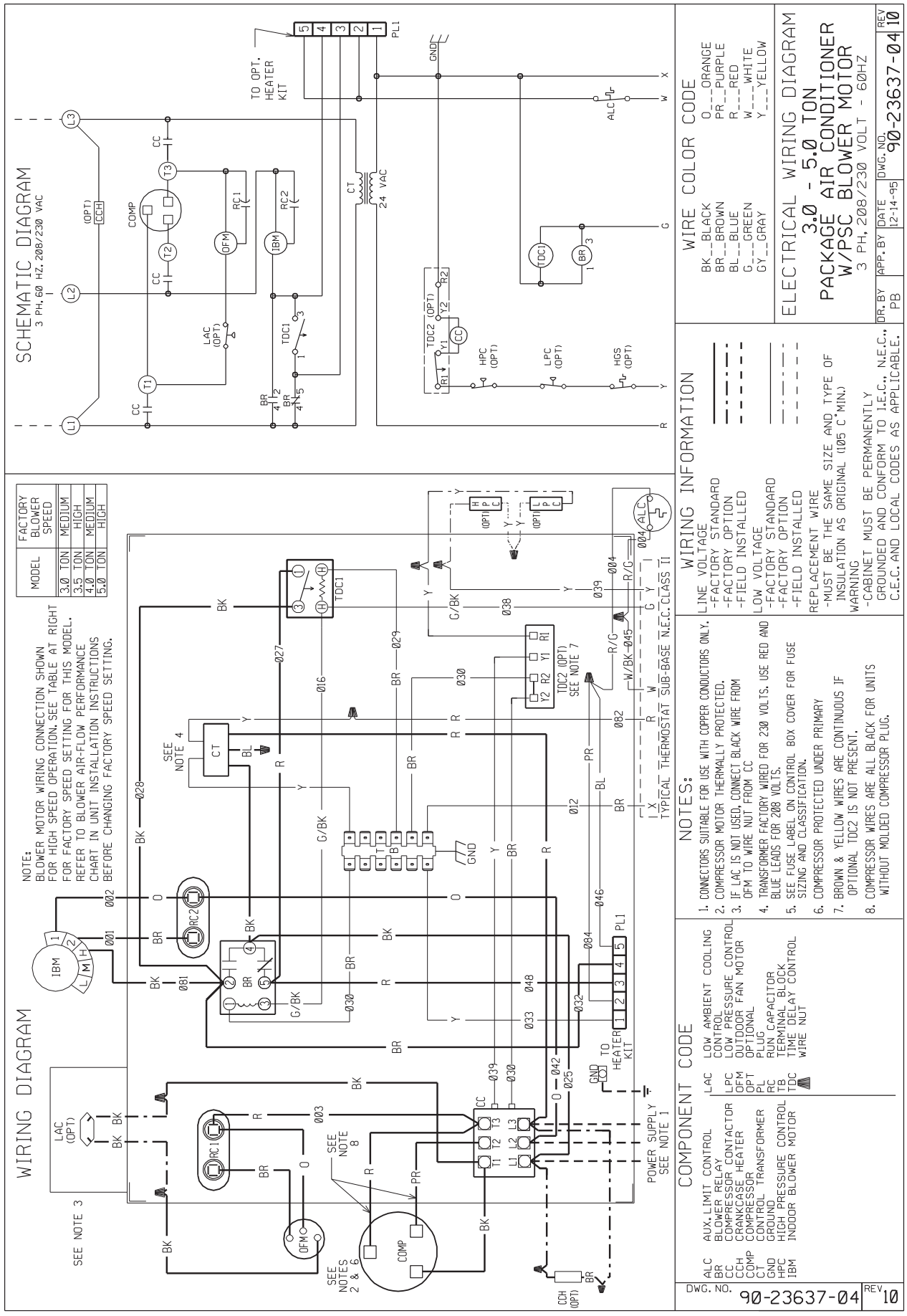
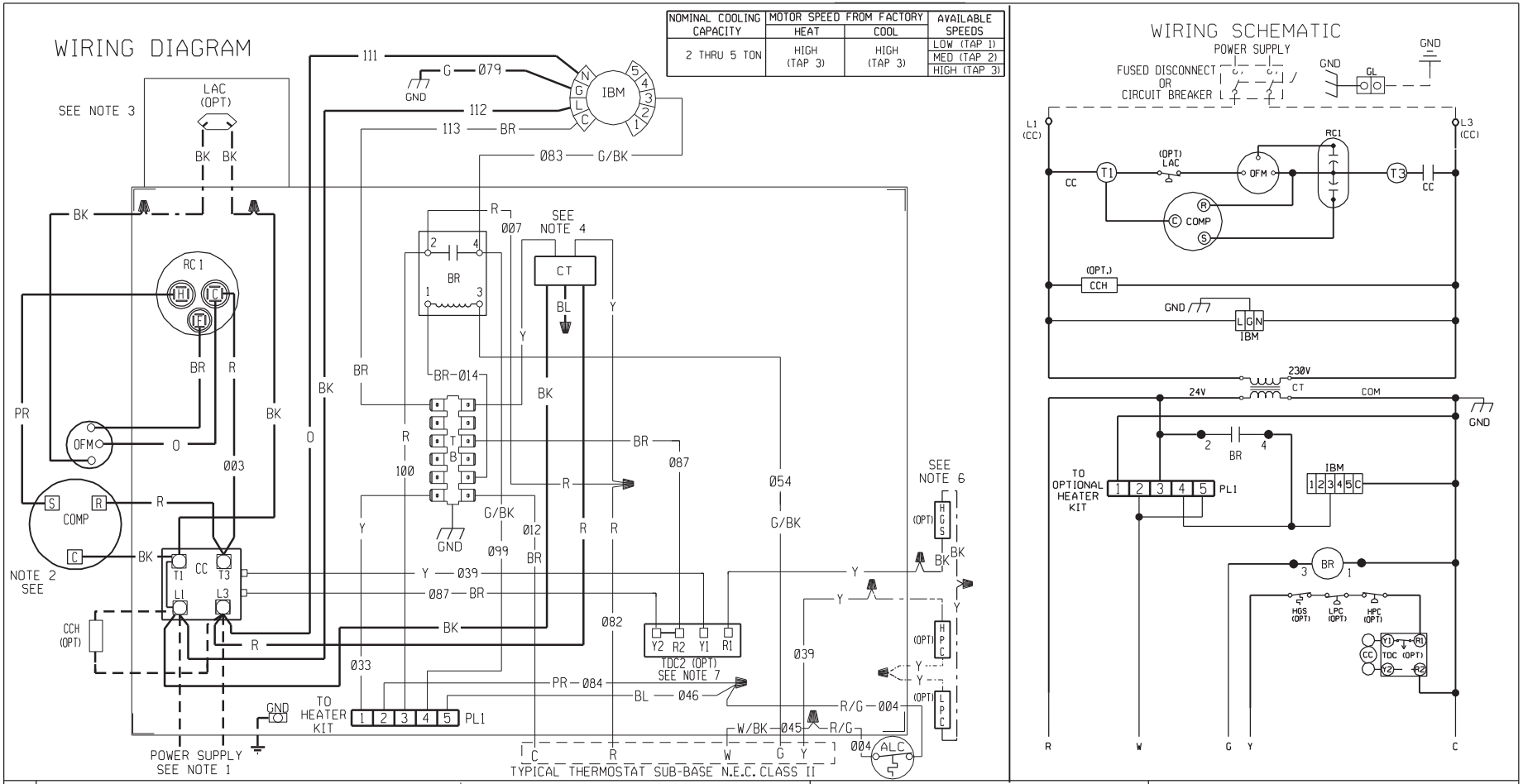


FIGURE 16
WIRING DIAGRAM



COMPONENT CODE

ALC	AUX. LIMIT CONTROL	LAC	LOW AMBIENT COOLING CONTROL
BR	BLOWER RELAY	LPC	LOW PRESSURE CONTROL
CC	COMPRESSOR CONTACTOR	OFM	OUTDOOR FAN MOTOR
CCH	CRANKCASE HEATER	OPT	OPTIONAL
COMP	COMPRESSOR	PL	PLUG
CT	CONTROL TRANSFORMER	RC	RUN CAPACITOR
GND	GROUND	TB	TERMINAL BLOCK
HGS	HOT GAS SENSOR	TDC	TIME DELAY CONTROL
HPC	HIGH PRESSURE CONTROL		WIRE NUT
IBM	INDOOR BLOWER MOTOR		

NOTES:

1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
2. COMPRESSOR MOTOR THERMALLY PROTECTED.
3. IF LAC IS NOT USED, CONNECT BLACK WIRE FROM OFM TO WIRE NUT FROM CC
4. TRANSFORMER FACTORY WIRED FOR 230 VOLTS. USE RED AND BLUE LEADS FOR 208 VOLTS.
5. SEE FUSE LABEL ON CONTROL BOX COVER FOR FUSE SIZING AND CLASSIFICATION.
6. HGS LOCATED IN TOP OF COPELAND ZR**K1 COMPRESSORS ONLY.
7. BROWN AND YELLOW WIRES ARE CONTINUOUS IF OPTIONAL TDC2 IS NOT PRESENT.

WIRING INFORMATION

LINE VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

LOW VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

REPLACEMENT WIRE
- -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105 C°MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

BK	BLACK	GY	GRAY	R	RED
BR	BROWN	O	ORANGE	W	WHITE
BL	BLUE	PK	PINK	Y	YELLOW
G	GREEN	PR	PURPLE		

ELECTRICAL WIRING DIAGRAM
2.0-5.0 TON SINGLE STAGE PACKAGE AIR CONDITIONER W/X-13 BLOWER MOTOR
1 PH, 208/230 VOLT

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		9-26-05	90-23637-11	04

DWG. NO. 90-23637-11 REV 04

FIGURE 17
WIRING DIAGRAM

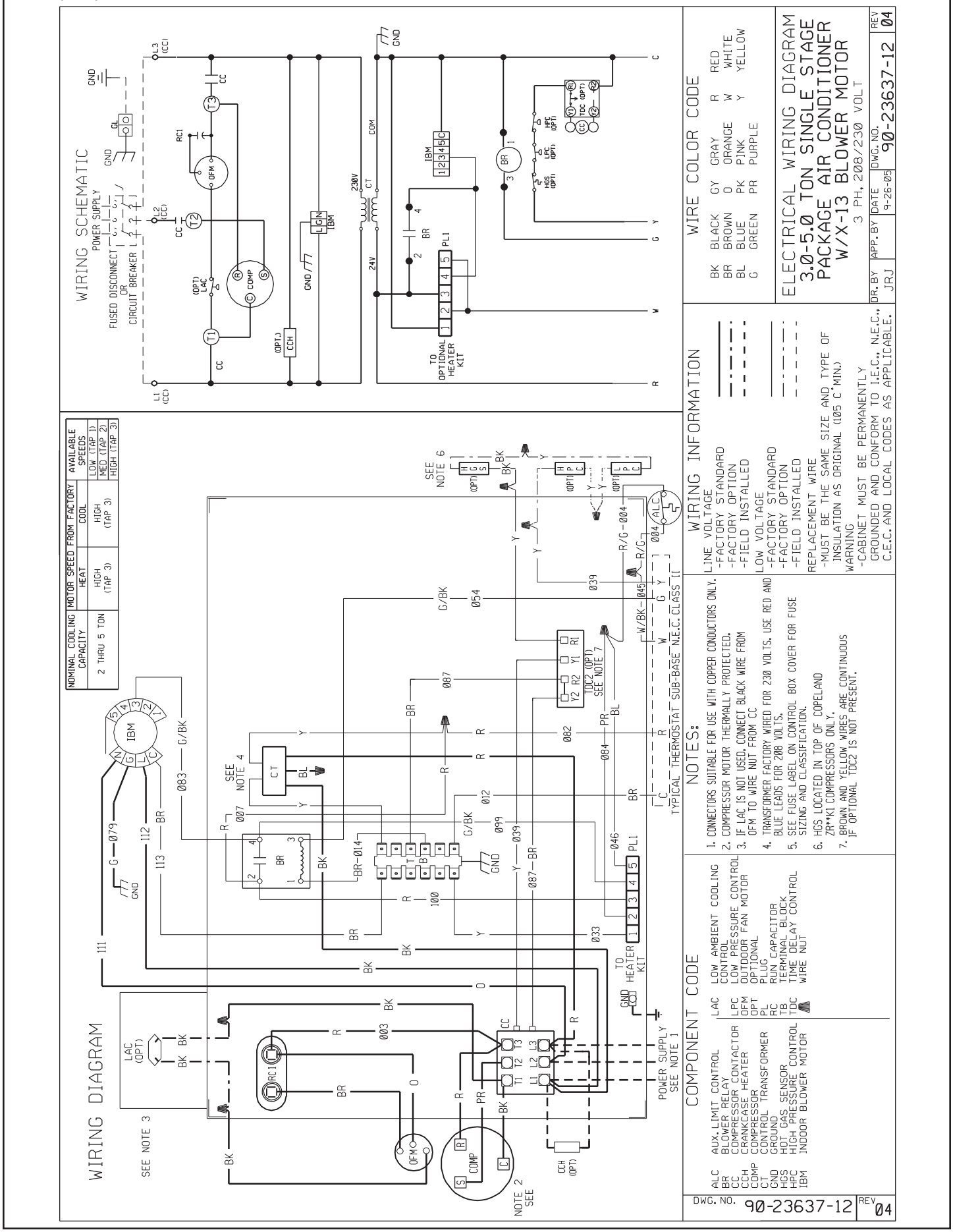
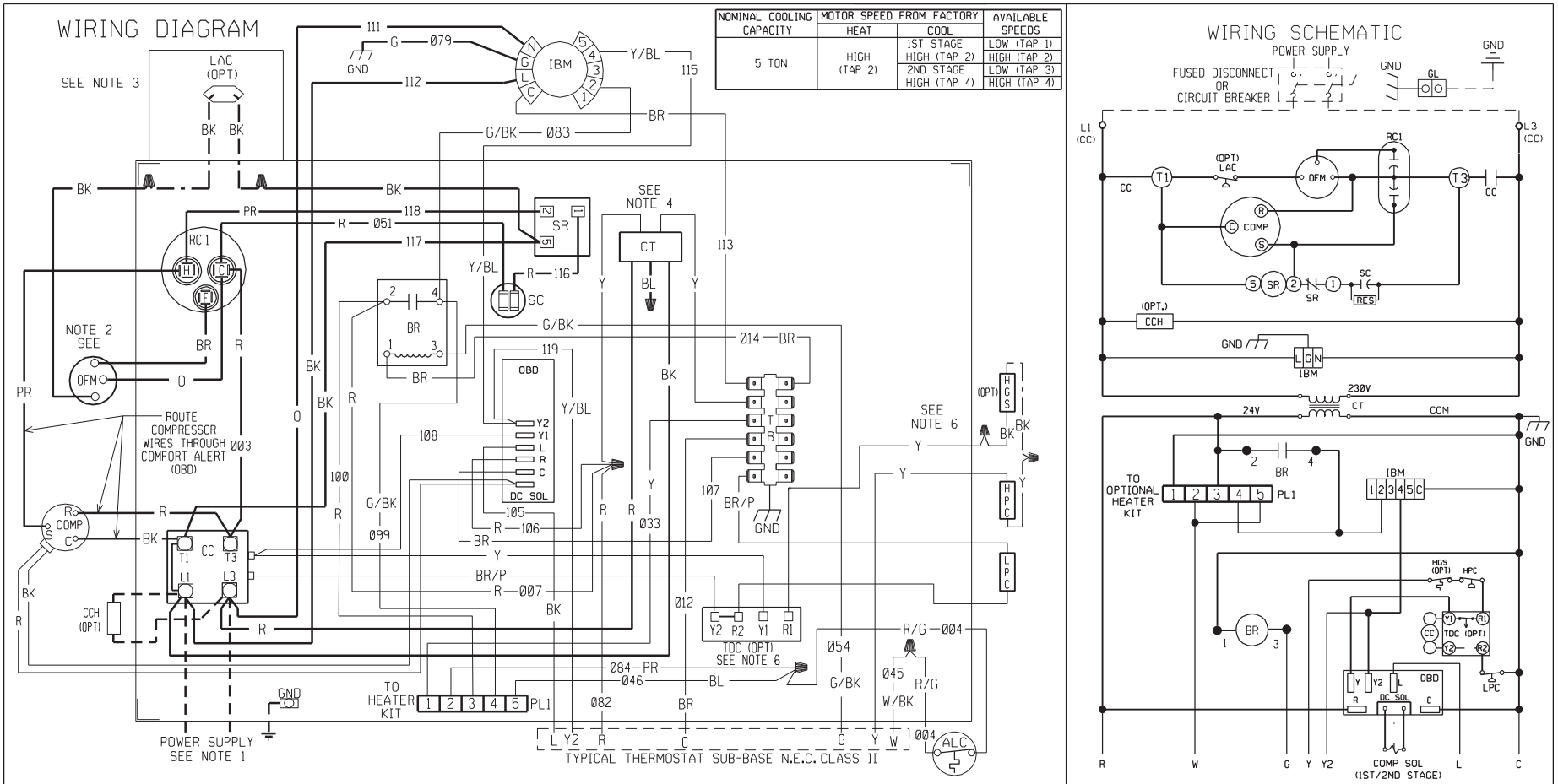


FIGURE 18
WIRING DIAGRAM



COMPONENT CODE

ALC	AUX. LIMIT CONTROL	LAC	LOW AMBIENT COOLING CONTROL
BR	BLOWER RELAY	LPC	LOW PRESSURE CONTROL
CC	COMPRESSOR CONTACTOR	OBD	ON-BOARD DIAGNOSTICS
CCH	CRANKCASE HEATER	OFM	OUTDOOR FAN MOTOR
COMP	COMPRESSOR	OPT	OPTIONAL
CT	CONTROL TRANSFORMER	PL	PLUG
GND	GROUND	RC	RUN CAPACITOR
HGS	HOT GAS SENSOR	SC	START CAPACITOR
HPC	HIGH PRESSURE CONTROL	SR	START RELAY
IBM	INDOOR BLOWER MOTOR	TB	TERMINAL BLOCK
		TDC	TIME DELAY CONTROL
			WIRE NUT

NOTES:

1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
2. COMPRESSOR MOTOR THERMALLY PROTECTED.
3. IF LAC IS NOT USED, CONNECT BLACK WIRE FROM OFM TO WIRE NUT FROM CC
4. TRANSFORMER FACTORY WIRED FOR 230 VOLTS. USE RED AND BLUE LEADS FOR 208 VOLTS.
5. SEE FUSE LABEL ON CONTROL BOX COVER FOR FUSE SIZING AND CLASSIFICATION.
6. BROWN AND YELLOW WIRES ARE CONTINUOUS IF OPTIONAL LIMITS AND/OR TDC ARE NOT PRESENT.

WIRING INFORMATION

LINE VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

LOW VOLTAGE
- -FACTORY STANDARD
- -FACTORY OPTION
- -FIELD INSTALLED

REPLACEMENT WIRE
- -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105 C° MIN.)

WARNING
- -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C. AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

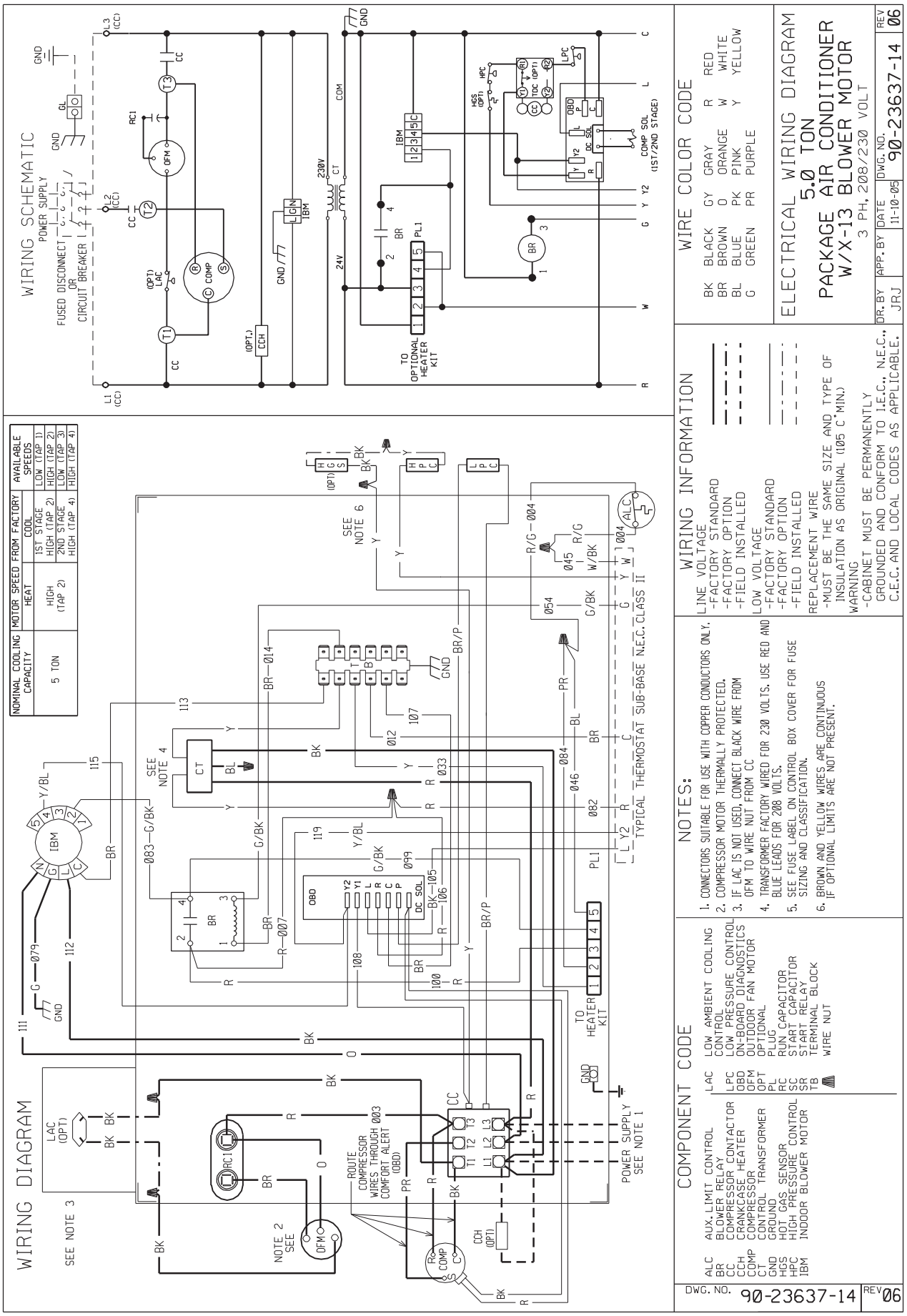
BK	BLACK	GY	GRAY	R	RED
BR	BROWN	O	ORANGE	W	WHITE
BL	BLUE	PK	PINK	Y	YELLOW
G	GREEN	PR	PURPLE		

ELECTRICAL WIRING DIAGRAM
5.0 TON
PACKAGE AIR CONDITIONER
W/X-13 BLOWER MOTOR
1 PH, 208/230 VOLT

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		11-9-05	90-23637-13	06

DWG. NO. 90-23637-13 REV 06

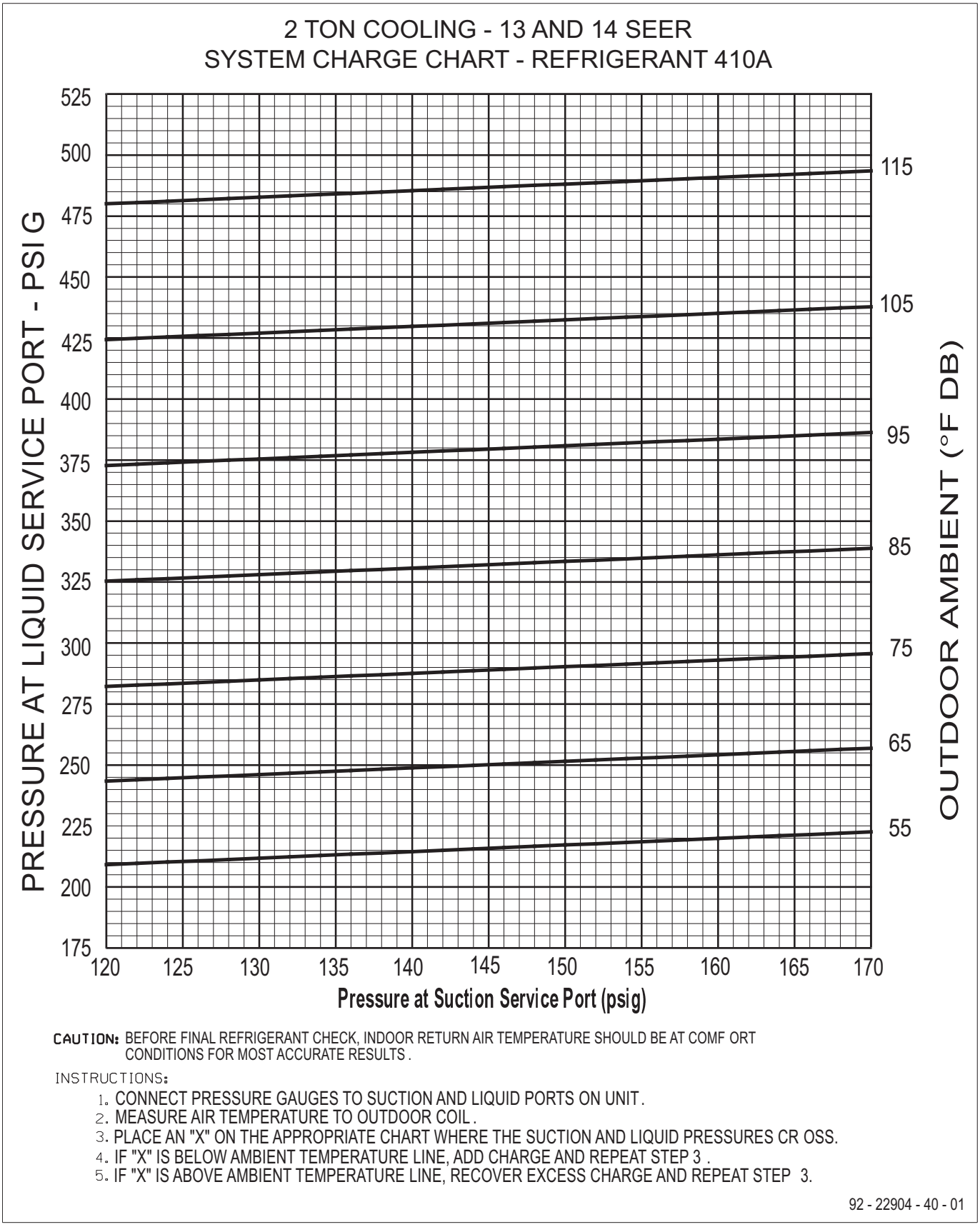
FIGURE 19
WIRING DIAGRAM



XXIV. CHARGE CHARTS

FIGURE 20
SYSTEM CHARGE CHARTS

2 TON PACKAGE AIR CONDITIONER – 13 & 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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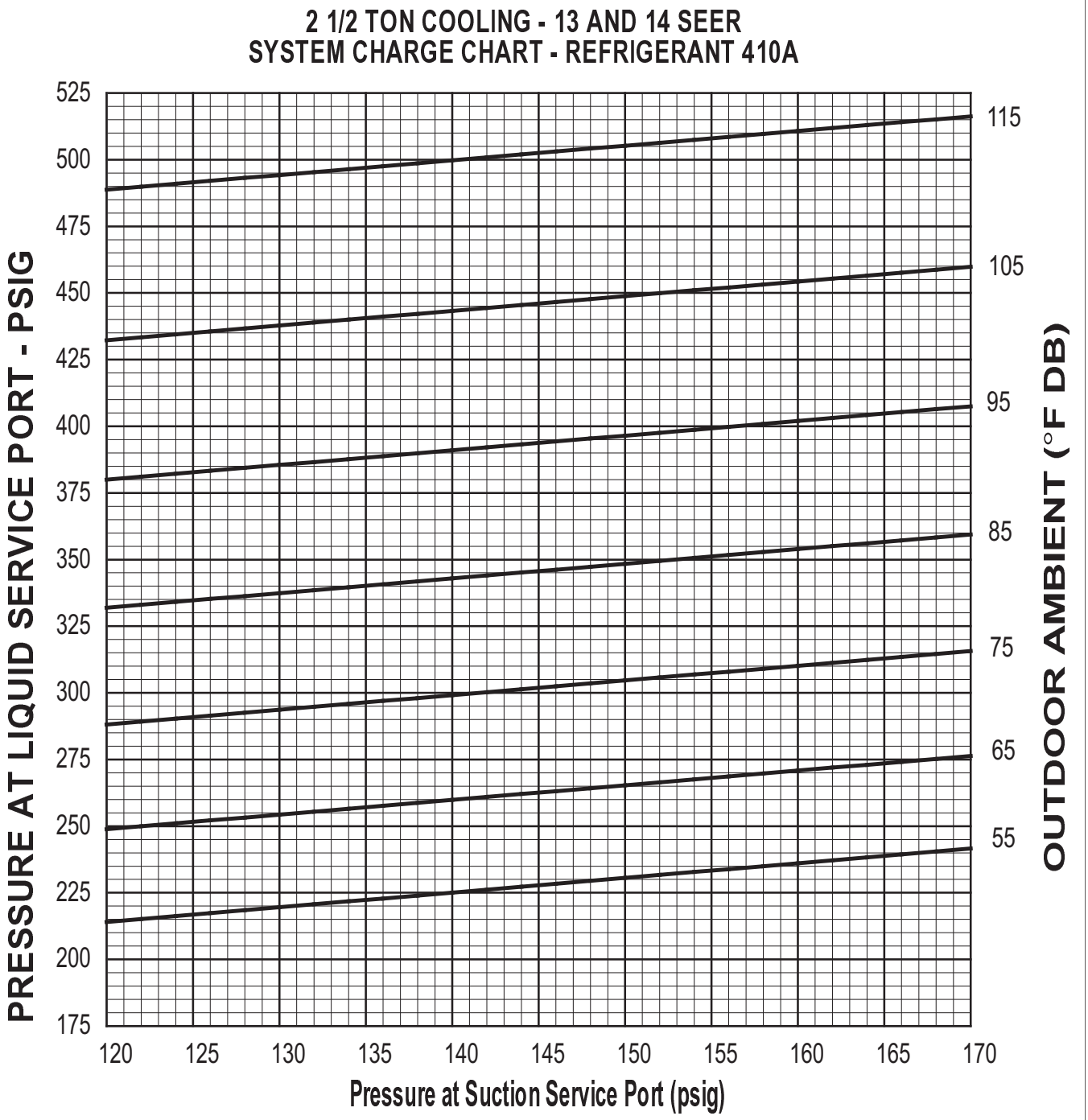
FIGURE 21
SYSTEM CHARGE CHARTS

2.5 TON PACKAGE AIR CONDITIONER – 13 & 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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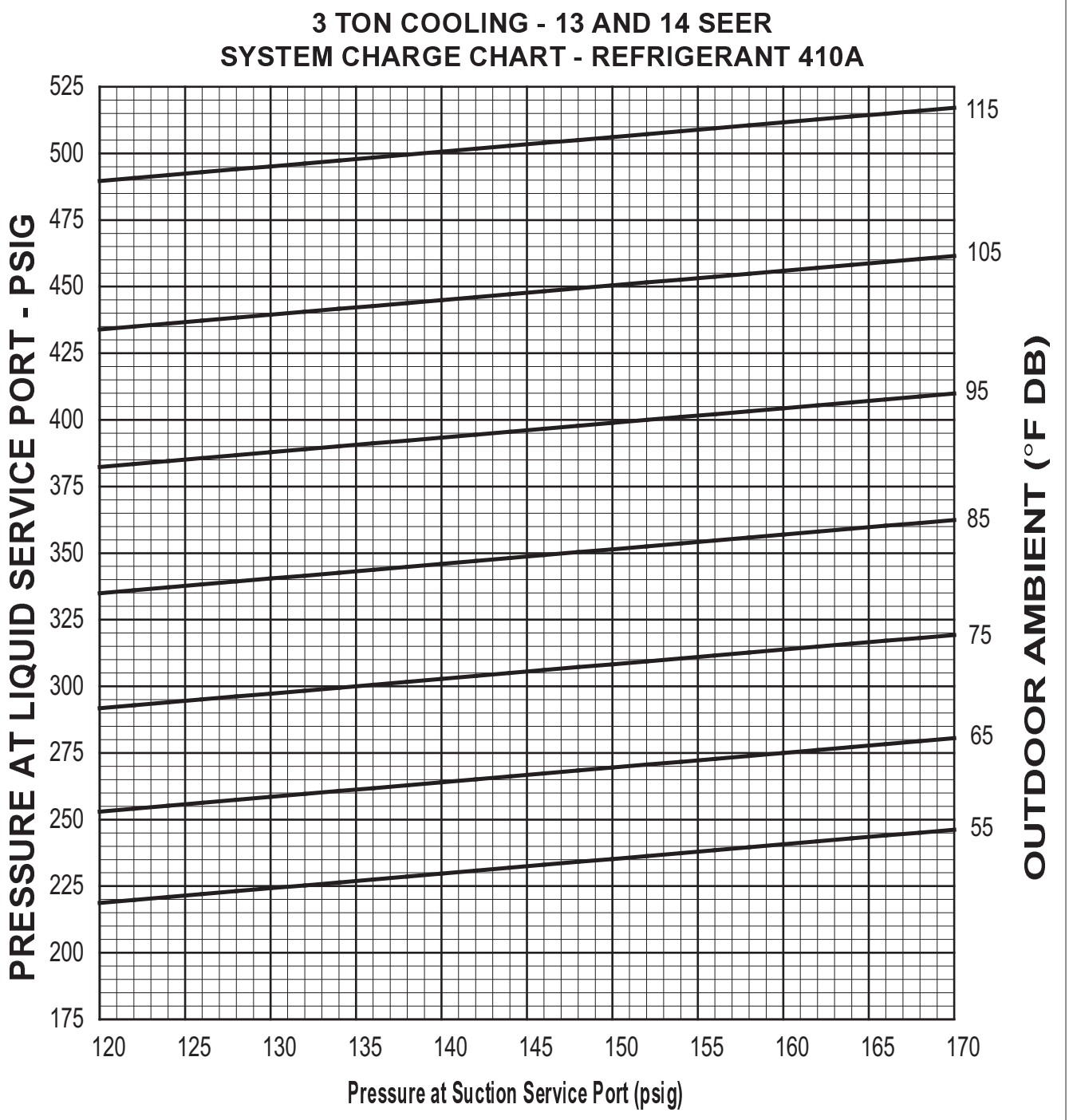
FIGURE 22
SYSTEM CHARGE CHARTS

3 TON PACKAGE AIR CONDITIONER – 13 & 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

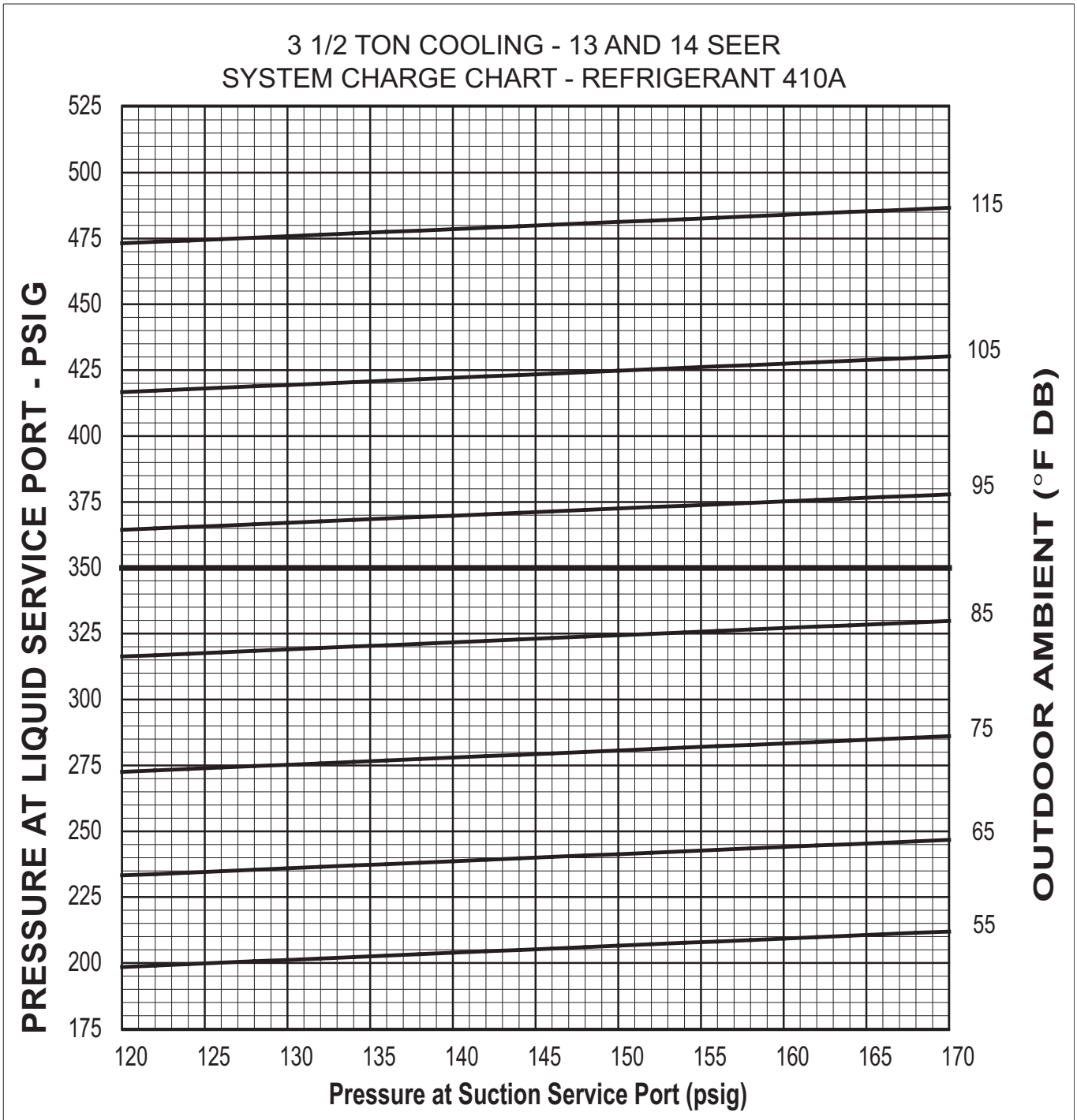
INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

92-22904-42-01

FIGURE 23
SYSTEM CHARGE CHARTS

3.5 PACKAGE AIR CONDITIONER – 13 & 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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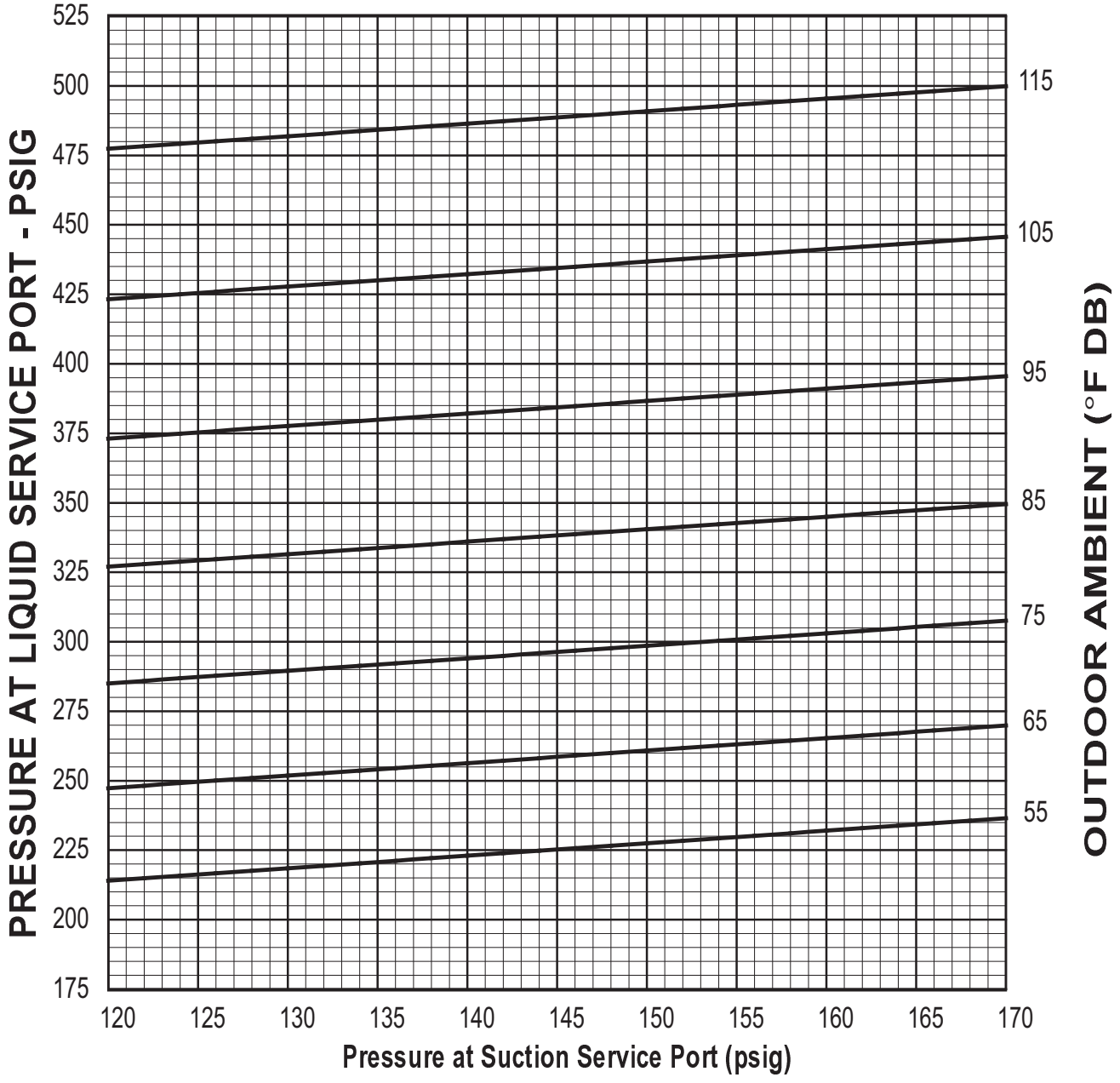
FIGURE 24
SYSTEM CHARGE CHARTS

4 TON PACKAGE AIR CONDITIONER – 13 & 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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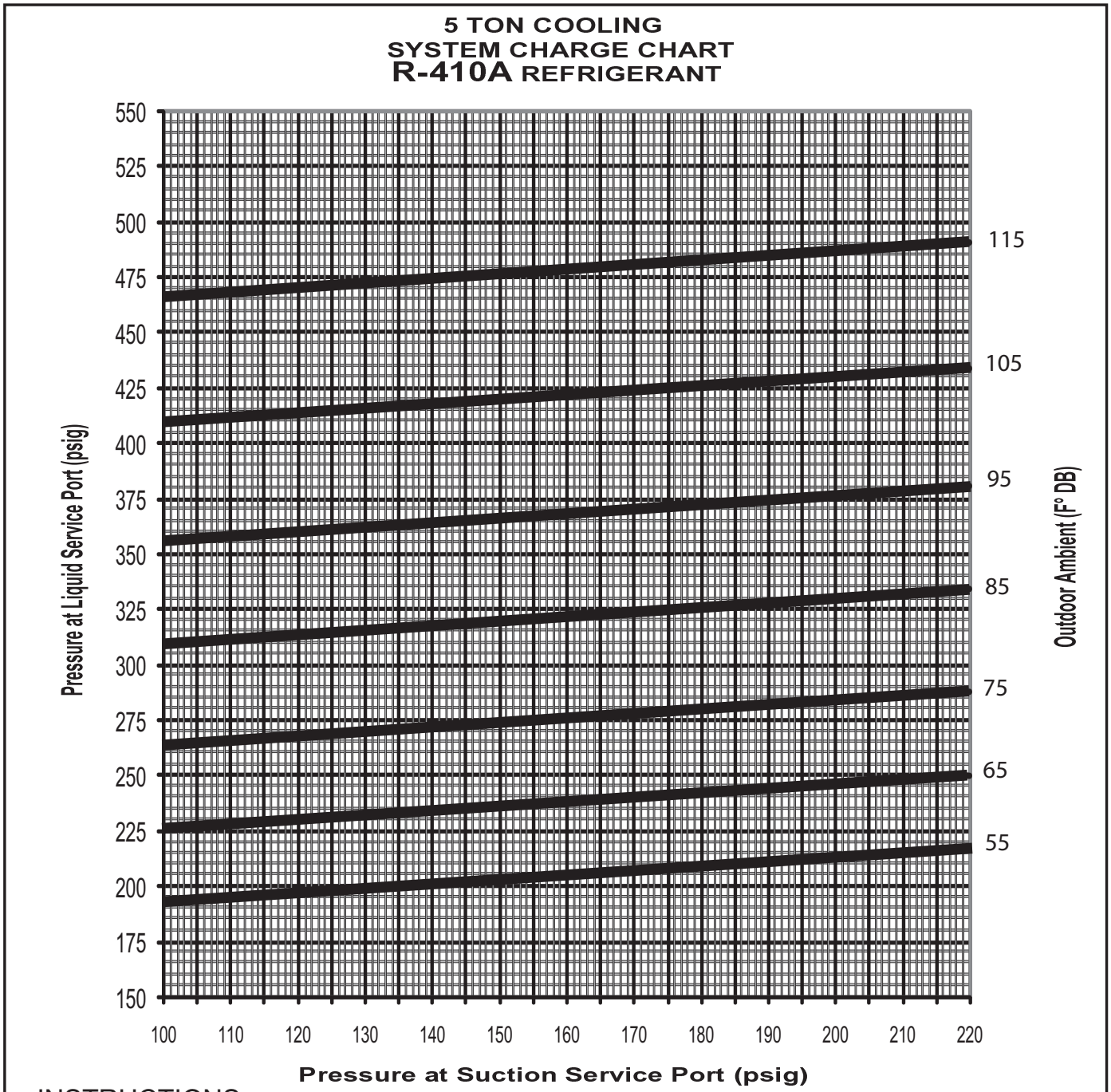
FIGURE 25
SYSTEM CHARGE CHARTS

5 TON PACKAGE AIR CONDITIONER – 13 SEER



INSTRUCTIONS:

1. CONNECT PRESSURE GUAGES TO SUCTION AND LIQUID PORTS AT OUTDOOR UNIT.
2. MEASURE AIR TEMPERATURE TO THE UNIT (OUTDOOR DRY BULB AMBIENT).
3. PLACE AN “X” ON THE CHART WHERE THE SUCTION AND LIQUID PRESSURE CROSS.
4. IF “X” IS BELOW OUTDOOR TEMPERATURE LINE, ADD CHARGE AND REPEAT 3.
5. IF “X” IS ABOVE OUTDOOR TEMPERATURE LINE, RECOVER CHARGE AND REPEAT.

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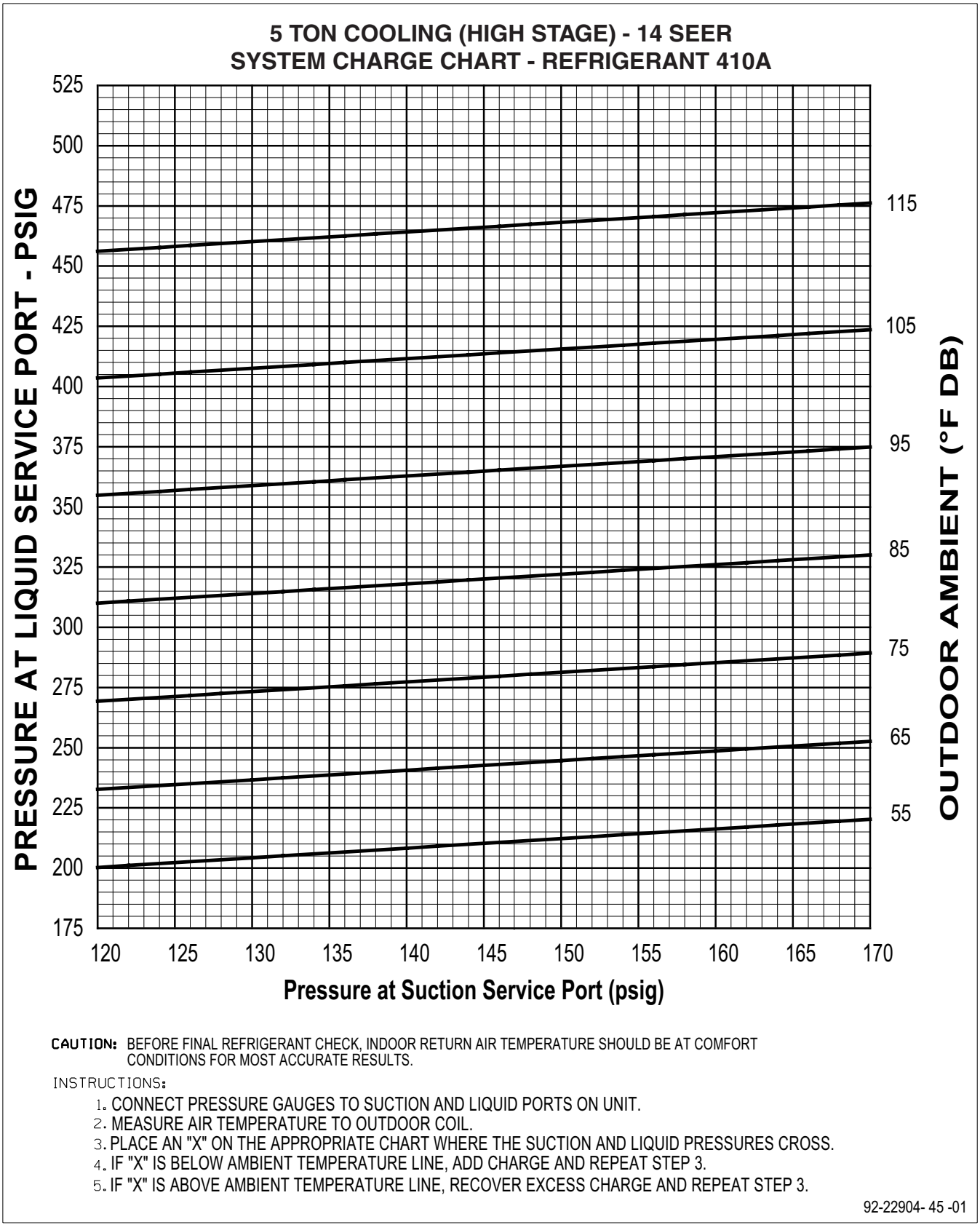
FIGURE 26
SYSTEM CHARGE CHARTS

5 TON PACKAGE AIR CONDITIONER – 14 SEER



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMFORT CONDITIONS FOR MOST ACCURATE RESULTS.

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT.
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL.
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CROSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3.
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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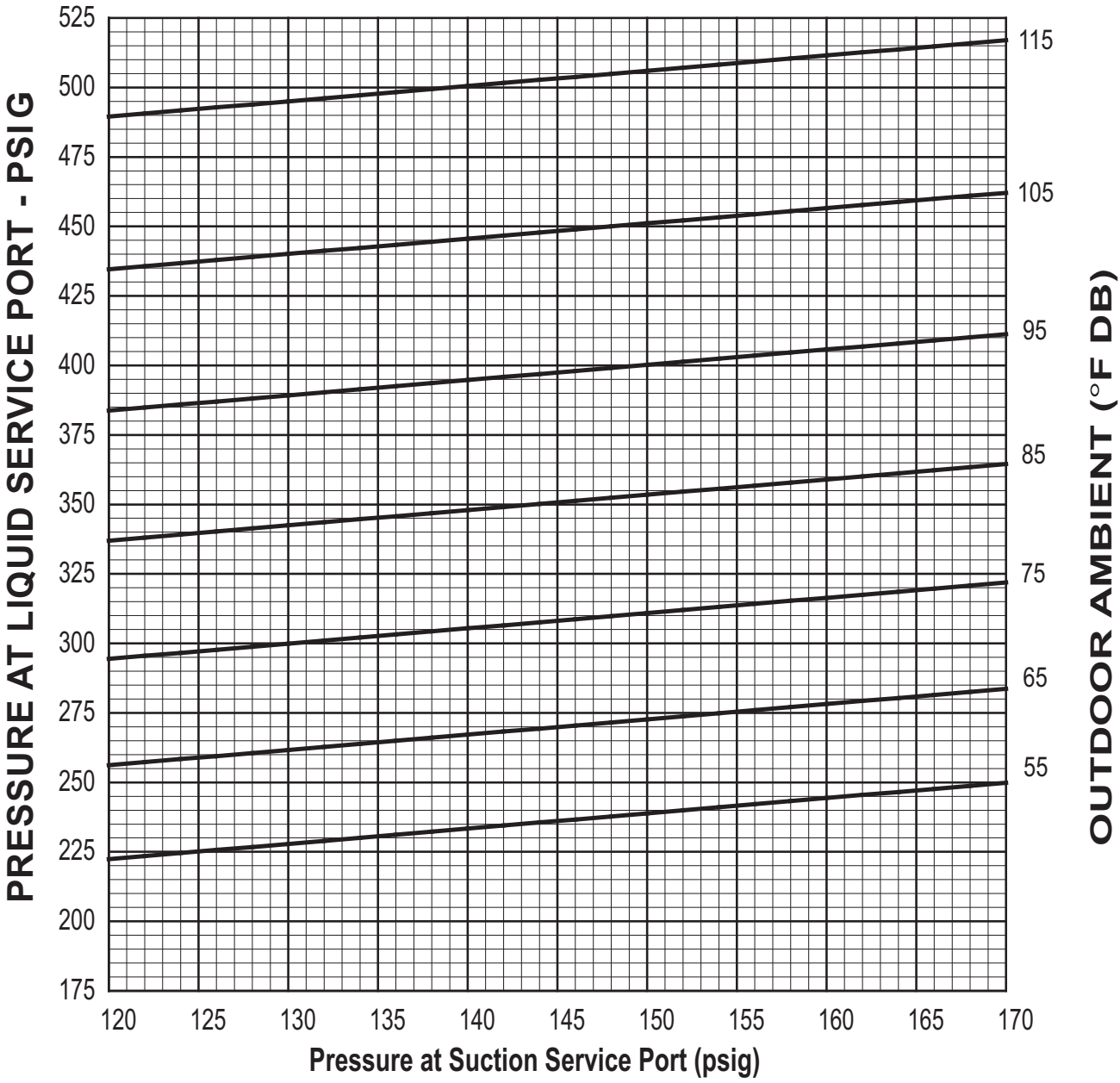
FIGURE 27
SYSTEM CHARGE CHARTS

5 TON PACKAGE AIR CONDITIONER – 14 SEER

5 TON COOLING (HIGH STAGE) - 14 SEER
SYSTEM CHARGE CHART - REFRIGERANT 410A



CAUTION: BEFORE FINAL REFRIGERANT CHECK, INDOOR RETURN AIR TEMPERATURE SHOULD BE AT COMF ORT CONDITIONS FOR MOST ACCURATE RESULTS .

INSTRUCTIONS:

1. CONNECT PRESSURE GAUGES TO SUCTION AND LIQUID PORTS ON UNIT .
2. MEASURE AIR TEMPERATURE TO OUTDOOR COIL .
3. PLACE AN "X" ON THE APPROPRIATE CHART WHERE THE SUCTION AND LIQUID PRESSURES CR OSS.
4. IF "X" IS BELOW AMBIENT TEMPERATURE LINE, ADD CHARGE AND REPEAT STEP 3 .
5. IF "X" IS ABOVE AMBIENT TEMPERATURE LINE, RECOVER EXCESS CHARGE AND REPEAT STEP 3.

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XXV. TROUBLESHOOTING

TROUBLE SHOOTING CHART

⚠ WARNING

DISCONNECT ALL POWER TO UNIT BEFORE SERVICING. CONTACTOR MAY BREAK ONLY ONE SIDE. FAILURE TO SHUT OFF POWER CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Unit will not run	• Power off or loose electrical connection • Thermostat out of calibration-set too high • Defective contactor • Blown fuses • Transformer defective • High pressure control open (if provided) • Interconnecting low voltage wiring damaged	• Check for correct voltage at compressor contactor in control box • Reset • Check for 24 volts at contactor coil - replace if contacts are open • Replace fuses • Check wiring-replace transformer • Reset-also see high head pressure remedy-The high pressure control opens at 610 PSIG • Replace thermostat wiring
Condenser fan runs, compressor doesn't	• Run or start capacitor defective (single phase only) • Start relay defective (single phase only) • Loose connection • Compressor stuck, grounded or open motor winding. open internal overload. • Low voltage condition • Low voltage condition	• Replace • Replace • Check for correct voltage at compressor - check & tighten all connections • Wait at least 2 hours for overload to reset. If still open, replace the compressor. • At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating. • Add start kit components.
Insufficient cooling	• Improperly sized unit • Improper airflow • Incorrect refrigerant charge • Air, non-condensibles or moisture in system • Incorrect voltage	• Recalculate load • Check - should be approximately 400 CFM per ton. • Charge per procedure attached to unit service panel • Recover refrigerant, evacuate & recharge, add filter drier • At compressor terminals, voltage must be within 10% of rating plate volts when unit is operating.
Compressor short cycles	• Incorrect voltage • Defective overload protector • Refrigerant undercharge	• At compressor terminals, voltage must be ± 10% of nameplate marking when unit is operating. • Replace - check for correct voltage • Add refrigerant
Registers sweat	• Low evaporator airflow	• Increase speed of blower or reduce restriction - replace air filter
High head-low vapor pressures	• Restriction in liquid line, expansion device or filter drier • Flow check piston size too small • Incorrect capillary tubes • TXV does not open	• Remove or replace defective component • Change to correct size piston • Change coil assembly • Replace TXV
High head-high or normal vapor pressure - Cooling mode	• Dirty condenser coil • Refrigerant overcharge • Condenser fan not running • Air or non-condensibles in system	• Clean coil • Correct system charge • Repair or replace • Recover refrigerant, evacuate & recharge
Low head-high vapor pressures	• Flow check piston size too large • Defective Compressor valves • Incorrect capillary tubes	• Change to correct size piston • Replace compressor • Replace coil assembly
Low vapor - cool compressor - iced evaporator coil	• Low evaporator airflow • Operating below 65°F outdoors • Moisture in system • TXV limiting refrigerant flow	• Increase speed of blower or reduce restriction - replace air filter • Add Low Ambient Kit • Recover refrigerant - evacuate & recharge - add filter drier • Replace TXV
High vapor pressure	• Excessive load • Defective compressor	• Recheck load calculation • Replace
Fluctuating head & vapor pressures	• TXV hunting • Air or non-condensibles in system	• Check TXV bulb clamp - check air distribution on coil - replace TXV • Recover refrigerant, evacuate & recharge
Gurgle or pulsing noise at expansion device or liquid line	• Air or non-condensibles in system	• Recover refrigerant, evacuate & recharge

FIGURE 27
COMFORT ALERT DIAGNOSIS CHART
SINGLE PHASE UNIT

Status LED	Status LED Description	Status LED Troubleshooting Information
Green "POWER"	Module has power	Supply voltage is present at module terminals
Red "TRIP"	Thermostat demand signal Y1 is present, but the compressor is not running	1. Compressor internal overload is open 2. Broken wire or connector is not making contact 3. Low pressure switch open, if present 4. Compressor contactor has failed open
Yellow "ALERT" Flash Code 1	**Long Run Time** Compressor is running extremely long run cycles	1. Low refrigerant charge 2. Evaporator blower is not running 3. Evaporator coil is frozen 4. Faulty TXV 5. Condenser coil is dirty 6. Liquid line restriction (filter drier blocked if present in system) 7. Thermostat is malfunctioning
Yellow "ALERT" Flash Code 2	**System Pressure Trip** Discharge or suction pressure out of limits or compressor overloaded	1. Condenser coil poor air circulation (dirty, blocked, damaged) 2. Condenser fan is not running 3. Return air duct has substantial leakage 4. If low pressure switch is present, check flash code (1) information
Yellow "ALERT" Flash Code 3	**Short Cycling** Compressor is running only briefly	1. High head pressure 2. Thermostat demand signal is intermittent 3. Time delay relay defective, if present 4. Hot gas sensor defective, if present
Yellow "ALERT" Flash Code 4	**Locked Rotor**	1. Run capacitor has failed 2. Low line voltage (contact utility if voltage at disconnect is low) 3. Excessive liquid refrigerant in compressor 4. Compressor bearings are seized
Yellow "ALERT" Flash Code 5	**Open Circuit**	1. Compressor contactor has failed open 2. High pressure switch is open, If present 3. Open circuit in compressor supply wiring or connections 4. Unusually long compressor protector reset time due to extreme ambient temperature 5. Compressor windings are damaged
Yellow "ALERT" Flash Code 6	**Open Start Circuit** Current only in run circuit	1. Run capacitor has failed 2. Open circuit in compressor start wiring or connections 3. Compressor start winding is damaged
Yellow "ALERT" Flash Code 7	**Open Run Circuit** Current only in start circuit	1. Open circuit in compressor run wiring or connections 2. Compressor run winding is damaged
Yellow "ALERT" Flash Code 8	**Welded Contactor** Compressor always runs	1. Compressor contactor has failed closed 2. Thermostat demand signal not connected to module
Yellow "ALERT" Flash Code 9	**Low Voltage** Control circuit < 17VAC	1. Control circuit transformer is overloaded 2. Low line voltage (contact utility if voltage at disconnect is low)

- *Flash Code number corresponds to a number of LED flashes, followed by a pause and then repeated.*
- *TRIP and ALERT LEDs flashing at same time means control circuit voltage is too low for operation.*
- *Reset ALERT Flash code by removing 24VAC power from module.*
- *Last ALERT Flash code is displayed for 1 minute after module is powered on.*

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FIGURE 28
COMFORT ALERT DIAGNOSIS CHART
THREE PHASE UNIT

Status LED	Status LED Description	Status LED Troubleshooting Information
Green "POWER"	Module has power	Supply voltage is present at module terminals
Red "TRIP"	Thermostat demand signal Y1 is present, but the compressor is not running	1. Compressor internal overload is open 2. Broken wire or connector is not making contact 3. Low pressure switch open, if present 4. Compressor contactor has failed
Yellow "ALERT" LED on Solid	A short circuit or over-current condition exists on "P" terminal	A. Low refrigerant charge B. Evaportaor blower is not running C. Evaporator coil is frozen D. Faulty TXV E. Condenser coil is dirty F. Liquid line restriction (filter drier blocked, if present in system) G. Thermostat is malfunctioning
Yellow "ALERT" Flash Code 2	**System Pressure Trip** Discharge or suction pressure out of limits or compressor overloaded **"Lockout"**	1. Condenser coil poor air circulation (dirty, blocked, damaged) 2. Condenser fan is not running 3. Return air duct has substantial leakage 4. If low pressure switch is present: A. Low refrigerant charge B. Evaportaor blower is not running C. Evaporator coil is frozen D. Faulty TXV E. Condenser coil is dirty F. Liquid line restriction (filter drier blocked, if present in system) G. Thermostat is malfunctioning
Yellow "ALERT" Flash Code 3	**Short Cycling** Compressor is running only briefly **"Lockout"**	1. High head pressure 2. Thermostat demand signal is intermittent 3. Time delay relay defective, if present 4. Hot gas sensor defective, if present
Yellow "ALERT" Flash Code 4	**Locked Rotor** **"Lockout"**	1. Low line voltage (contact utility if voltage at disconnect is low) 2. Excessive liquid refrigerant in compressor 3. Compressor bearings are seized
Yellow "ALERT" Flash Code 5	**Open Circuit**	1. Compressor contactor has failed open 2. High pressure switch is open, if present 3. Open circuit in compressor supply wiring or connections 4. Unusually long compressor protector reset time due to extreme ambient temperature 5. Compressor windings are damaged
Yellow "ALERT" Flash Code 6	**Missing Phase** **"Lockout"**	1. Broken wire or connector on one phase 2. Compressor motor winding is damaged 3. Utility supply has dropped one phase
Yellow "ALERT" Flash Code 7	**Reverse Phase** **"Lockout"**	1. Compressor running backwards due to supply phase reversal
Yellow "ALERT" Flash Code 8	**Welded Contactor** Compressor always runs	1. Compressor contactor has failed closed 2. Thermostat demand signal not connected to module
Yellow "ALERT" Flash Code 9	**Low Voltage** Control circuit < 18VAC	1. Control circuit transformer is overloaded 2. Low line voltage (contact utility if voltage at disconnect is low)

- *Flash Code number corresponds to a number of LED flashes, followed by a pause and then repeated.*
- *TRIP and ALERT LEDs flashing at same time means control circuit voltage is too low for operation.*
- *Reset ALERT Flash code by removing 24VAC power from module.*
- *Last ALERT Flash code is displayed for 1 minute after module is powered on.*

92-101534-04-00